THE MARINE REVIEW

VOL. 45 CLEVELAND MAY, 1915 NEW YORK No. 5

Battleship Pennsylvania

The Most Powerful Fighting Machine Yet Added to the American Navy—Latest Product of the Newport News Yard

THE battleship Pennsylvania, launched from the yard of the Newport News Ship Building & Dry Dock Co., Newport News, Va., is the most powerful fighting machine yet added to the fleet of dreadnaughts of the United States navy.

The great advance made in naval design and construction is forcibly demonstrated when a comparison is made of the Pennsylvania and the dreadnaught Delaware, launched at the same shipyard Feb. 6, 1909. The Delaware has a displacement of 20,000 tons, and five turrets with two 12-inch guns each, a total of ten 12-inch turret guns; while the Pennsylvania has a displacement of 31,400 tons, and four turrets with three 14-inch guns each, a total of twelve 14-inch turret guns. The 12-inch guns of the Delaware throw 4 tons of metal at a single broadside; the 14-inch guns of the Pennsylvania throw 7½ tons at a single broadside.

The Pennsylvania on Feb. 1, 1915, was 67.7 per cent completed, and the contract date of completion is Feb. 28, 1916.

Some of the principal characteristics of the Pennsylvania are as follows:

Length on load waterline, 600 feet.
Length over all, 608 feet.
Breadth, extreme, load waterline, 97 feet ½ inches.
Depth to weather decks, main and upper, respectively, 46 feet and 53 feet 9 inches.
Mean draft to bottom of keel at trial displacement, 28 feet 10 inches.
Number of decks, 5; with bridge deck and two platforms.
Number of compartments, about 400.
Mean trial displacement, 31,400 tons.
Speed, 21 knots.

Armament

Main battery:—Twelve 14-inch, 45-caliber, breech-loading rifles. Four submerged torpedo tubes.

Secondary battery: — Twenty-two 5-inch, 51-caliber, rapid-fire guns; four 3-pounder saluting guns; two 1-pounder guns for boats; two 3-inch field pieces, and two 0.30-caliber machine guns.

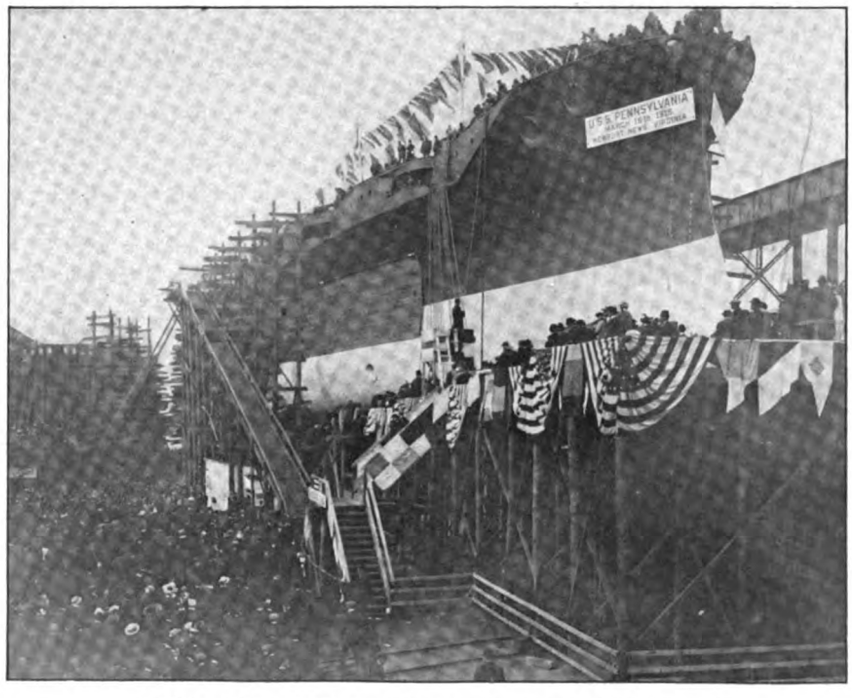
Complement:—Officers, 65; crew, 863; marine detachment, 74.

Fuel oil capacity, 694,830 gallons,—2,322 tons.

The plans and specifications for the Pennsylvania, authorized by act of Congress, approved Aug. 22, 1912, were completed and circular signed by the assistant secretary of the navy Dec. 18, 1912, and issued to bidders upon request after December 20, 1912.

Contract for the Pennsylvania was signed with the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., on Feb. 28, 1913, at a price of $7,260,000; to have the bidder's design of Curtis turbines installed, and to be completed within 36 months.

The total cost of completed ship is approximately $13,000,000. The keel was laid Oct. 27, 1913.



THE BATTLESHIP PENNSYLVANIA ON THE STOCKS

Generated on 2024-07-26 09:51 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Dispensing with the Fathom

Lieut. Comdr. Gilbert P. Chase, of the coast survey, has sent out the following circular letter:

"The superintendent of the coast survey desires to have expression of opinion from those engaged in coastwise trade, or who have occasion to use the coasting charts, as to whether it were better to use the foot or the fathom as the unit of depth. As the shoal waters are now used so much by motor boats, the foot is unquestionably the best for this class of vessel.

"As the draught of vessels is marked in feet and not in fathoms, it would seem better that, whenever in waters where the depth is close to the draught of a vessel, that it would be much better to have the soundings indicated in feet, as if the soundings are indicated in fathoms it is necessary to perform the mental operation of reducing this depth to feet in order to compare it with the draught of the vessel.

"I am personally of the opinion that the foot is the best unit to use for the sounding on this class of chart. Coast and Geodetic Survey Chart No. 1216 (July, 1914), may be taken as an example of the series of charts referred to in this letter. If anyone feels inclined to express an opinion in regard to this matter, we would be very glad to hear what he has to say about it."

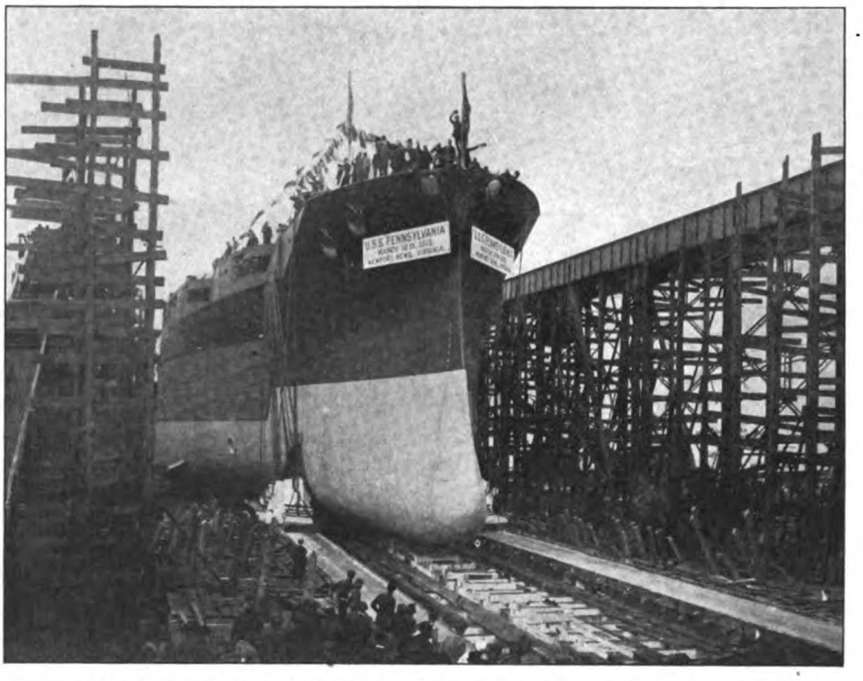
A few days later Lieut. Chase followed it with the following circular:

"The circular letter issued from this office, under date of the 17th inst, in regard to the unit of depth to be used on coastwise charts was intended only to cover the particular point in question, whether it would be better to use the foot or fathom on the series of coast survey charts that is now being revised and improved in other respects.

"The letter, however, has led to a deeper discussion of the subject, and we might well ask ourselves the question 'why not use the foot in every case and eliminate the fathom entirely?' We are all accustomed to measure the heights of buildings, bridges, walls, and even the heights of mountains in feet. Sailors, seamen, mariners find the unit, the foot, suitable for measuring the length, beam and draught of their vessels, the height of masts, the height of the bridges above the water, and the heights of lights and lighthouses above the sea level; yet when it comes to measure the depths of water under the vessel, we find that custom has given to us another unit—the fathom. The fathom in itself is nothing more than a certain multiple of feet (6 feet), and why could we not accustom ourselves to the use of the foot as a unit of measure of all depths below the surface, the same as for all heights above the sea level?

"Since the hand lead has from time immemorial been marked in fathoms, many seafaring people would be most reluctant to give up that familiar term, yet the tendency, no doubt, is to change to feet; in fact, we have very good authority for a partial change in the following paragraph quoted from page 71, Modern Seamanship, Knight, 1912: 'This method of marking the lead line and of reporting soundings ('by the deep', etc.) is antiquated and should be obsolete. A lead line should have a mark for every fathom and half fathom up to 10 fathoms; and for a considerable range—covering the depths that are critical for the ship using it—it should be marked in feet. Thus, if a ship draws 20 feet of water, there should be a mark at every foot between 20 and 30. The soundings should be reported by the leadsman, sharply and clearly, in fathoms and fractions for depths exceeding, say 6 fathoms, and in feet for depths below this.'

"In considering such subjects as this we should be governed by the principle that what is simplest and easiest to use and the most generally applicable is to be chosen in preference to others. The universal adoption of the metric system would make the whole question of weights and measures much easier for us all, but if the time of its adoption is not to be seen by any of us, let us try to simplify matters as much as we can."



THE BATTLESHIP PENNSYLVANIA SLIDING DOWN THE WAYS

Commercial Shipbuilding on the Harlem

The recent dredging operations on the Harlem river, New York City, have made it possible for the construction and navigation of larger vessels through that water-way connecting the Hudson river with Long Island sound. As a result the large shipbuilding and repair plant of the Gas Engine & Power Co. and C. L. Seabury & Co., Consolidated, at Morris Heights on the Harlem, is prepared to take full advantage of its building equipment which can handle wooden or steel vessels up to 300 feet in length and of draught up to 14 feet. Propelling engines of the reciprocating and Curtis turbine type, the Seabury water tube boiler, condensers, steam blower and steering engines, and gasoline generating sets for the auxiliary electric lighting of passenger and commercial vessels and yachts, in fact vessels complete, are all built at these works.

The Electric Boat Co. was awarded a contract for four submarines provided for in the last naval appropriation bill. One of them, to be known as the Schley, is of the largest ocean-going type with a displacement of 1,000 tons. She will be equipped with oil engines designed on the Diesel principle, have a surface speed of 20 knots and a submerged speed of 10 or 12 knots.

Generated on 2024-07-26 09:51 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Ocean Towing By Freighters

Wrinkle and Reminiscence Combined—A Long Tow in the North Atlantic—Experiences in Heavy Weather

By Capt. George S. Laing

WHO among sea dogs from cabin boy to captain has not at various times of their career lavished and cherished a sea-born love and respect to the point of reverence for tow boats, towing and all that runs tributary thereto, both commercially and adventurously? Whether it is on a smooth canal, a raging sea or a swift running river, tow boats and towing are profound factors for study. Incidental to thoughts and facts concerning water haulage stands out in prominence the knowledge that whilst railroads are perhaps our foremost commercial levers, almost everything from surveyors' work to elegant rolling stock is artificial, and that men have such genius is worthy of due respect and proud reflection, but with our towing problems nature has been kind enough to figuratively supply both lever and fulcrum, towit, the water with its multitudinous sustaining and moving powers. Both the horizontal and vertical motions of water are instrumental in tow-borne traffic. Whilst ebb water would invite all that floats seaward, it is good to know that flood waters will in turn overcome shallow bars and deepen channels with their temporary rise, thus allowing most marvelous manipulation of all that towing or self-propulsion means in water transit. Perhaps the parent of towage was the lighter or bargeman with the pike or breast pole and later the horse on the canal bank whose friend and substitute was the immortal boy with the tow rope bowline fastened over his shoulders. Then when small sail craft got becalmed near the land, out went the dinghy and furious jerks on a condemned fore sheet for a tow rope made crews pray for wind. To think that a horse, mere boy or again a small boat's crew or pike pole man, could each in a different way cause weight out of all proportion to follow them on the bosom of the waters is in itself food for interesting investigation to landsmen as well as seamen.

To those of the cloth who went on long sailing ship voyages the first to herald news from terra firma was the off-shore tug, laying as it were in ambush in some sheltered water from which the open sea could be scanned, and to think that this midget could with apparent ease pull deep-draughted and heavily laden merchantmen, who tower over them many times both in cubic capacity and water displacement at an average speed of five to ten miles an hour is cause for wonder. Towing has not been confined absolutely to coasts or rivers, either, when we realize the pulling around the globe of huge floating dry docks, mammoth dredges and the towing to American and British ports of merchantmen who have come to grief in some out of the way part of the world where permanent repairs could not be carried out. Cleopatra's Needle, now on Thames embankment, had a miraculous experience when towed from Egypt in a water-tight tube, and in later days a huge dry dock has been towed to the Philippines from our American yards. A similar dock to this one was lost en route to Cape Town a few years ago, and no doubt the west African negroes think it a joke to see such a puzzling structure lying semi-hid in a treacherous shifting sand. Of course, the underwriters would think more soberly of such a misfortune.

New York Harbor Tugs

Who has not marveled at the enterprise of the New York harbor tugs, and the reference applies to all our large ports. The stay-in-shore tug generally has the wet uptake, and the snorting from their exhausts through the non-condensing engines and the frequent shriek signals from their powerful whistles make you think the water world is run principally on useless noise. In my sailing ship days the finest tugs afloat were perhaps to be seen on the Hoogli river, India, and in Australian waters, and at that time they had the handling of our old clipper ships, alas, whose memory is dropping astern fast. Of course, all maritime nations had fine specimens of tow boats at that time, too, and have much better now, but the Hoogli and Australian tow boats were more powerful and massive in every detail as they had to steam abroad to their assigned haunts unattended over the vast ocean routes. At the present time gigantic tugs are in evidence both on this side and on the other side of the Atlantic, as even now it is comical to think that in the demand for size, the powerful leviathians, both passenger and freight craft, need the escort of two, four or more tugs during their harbor maneuvers, and long may they need it, for the towing industry is one of the most noteworthy and intelligent branches of the marine world. When our coasts are swept by hard gales and tales of shipwreck strike our ears, are all the tugs tied up to lee docks? I think not. Quite a few head for the open to aid in bringing helpless craft or dying seamen to safety, and many tugs work in conjunction with the government life boats. This service is not always for money, very often it is solely for humanity.

From a commercial standpoint, we have all been interested in the feats enacted on the Pacific coast with lumber and on the Atlantic coast with coal towage, comprising barge and raft systems. The Great Lakes do their share, too, in ore, grain and lumber tows, in this case the towboat herself being a heavy carrier of cargo as well as housing the powerful engines that keep the tow ropes true and taut. Everything that we have considered and reviewed so far has had reference to the craft built expressly for towing and being towed or temporarily fixed for that intent, for all the sea tows from ship yards are made tow-worthy before going out of the builders' hands, but as we admit that the art of towing is first wonderful, then interesting and commercially a heavy marine asset, it would not seem unreasonable for the writer to give expression to one particular case of towing by non-towing craft, i. e., one merchant steamer finding another in a broken-down plight and with neither towing adaptation or necessary outfit, filling the bill. In a seafaring life we get experience in most of our work through repetition and soon gain a confidence as to results. We can all take an accurate altitude of the sun when our ship is diving bows under or rolling heavily, or nurse a cranky timber-laden craft when her weather side becomes a deck and her lee rail a bilge keel, and at other times grope through "growler" ice off the New-

Generated on 2024-07-26 09:51 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

foundland banks or stifle spontaneous combustion fires, etc., but when the job which may only come along once in a lifetime turns up, it may be taken in hand in a very immethodical way by the most otherwise experienced men.

Some dark night it may be your lot to sight the two vertical globular red lights that "not under command" ships carry, and the experience here given would at least do you no harm, and again it might be very useful. Some of the supposedly simple things in life are not told us, as our superiors in knowledge took for granted that we knew them when we didn't. No career calls for more observation and intelligence than a seaman's; in fact, there is no limit to what he should know, and I have often proved the following assumption:

That every man knows a little,
Some men know more than others,
But no man knows very much,

and at some problem which we are unaccustomed to, a humble but reasoning coal passer or an assistant cook might be able to help the chief engineer or the captain. Now for the towing that I can speak of from personal experience. The incident happened about 12 years ago when filling the capacity of second officer on an ocean freighter and bound from a port in Asiatic Turkey to Baltimore, Md. Our cargo was one of the worst to contend with, chrome ore, and although we had taken the precautionary measure of loading this unenviable stuff on a raised platform in the hold, thereby decreasing gravity as related to vessel's buoyancy and rolling tendencies, we still thought it wise to make the southern route from Gibraltar to Hatteras, as it was December and an overloaded stomach in the ore trade needs fine weather if it can be had. As often happens on so-called southern routes, we kept wallowing across the Atlantic in a streak of meteorological samples, the very grease and tar washed out of our hatch covers with trying to bail the ocean in on one side and out on the other. As this was a three-watch vessel, I was always in charge of the bridge from noon to 4 p. m. and midnight to 4 a. m. When approximately half way across and about 1,600 miles from Bermuda reefs, at 2 o'clock one morning the forward lookout-man edged up to the weather side of the bridge, lowered his head out of the wind and said quietly: "See that light to leeward, sir?" I answered by taking the binoculars from the box and finding that the light in question was the then "not under command" signal of three red vertical lights. (I must explain to our lay readers that the forecastle lookout is kept on the lee bridge in heavy weather, as nothing but a well-clinched rivet can hang on at the bow.) At once I rang down to the engine room by telegraph to stand by and a minute later reduced her to half speed, at the same time telephoning to the master in his berth. We soon were within hail with megaphones and found out that there was no life in immediate danger, but assistance in the shape of towing would be required, as the stranger had broken the tail end shaft at the stern tube and was at the mercy of the elements with no chance of making port unaided. Our unfortunate one was Welsh owned and was bound from Grecian Islands to New York with a large consignment of dried fruits for the Christmas market, and her consignees were daily looking for her in vain. The first mental calculation I made was the probable amount of prize money the salvage courts would award a man of my rating, and then wondered if I would be in the small boat passing first stage lines, as the risk encountered there means sometimes an extra cash dole if you don't get drowned.

Towing in Mid-Ocean

After arranging to hover around till daylight and meantime getting all kinds of likely gear and junk from fore peak and boatswain's locker in readiness, we were all pleased to see the improvement in the weather, both wind and sea taking on a more affable disposition, and by 8 a. m. the fun commenced. The master, of course, had held a hurried consultation of varied colors with his mates and chief engineer and a good position had been worked out from the stars and plotted on the chart, also found course and distance to Bermuda, as we had insufficient fuel to chance an Atlantic seaboard port. The engineer had done some bunker measuring and note was taken of his worried looks as he went through momentary nightmares about thrust, revolutions, speed under tow, slip and propeller fouling.

It was apparent that we could not tow from the poop, as that deck had quarter boats and davits, double emergency steering wheels and the usual quadrant chains, buffers, lead blocks and awning gear, etc., so to tow from after well deck pipe and bridle to poop bollards was decided. Although the wind and sea tops had gone down considerably a heavy swell with powerful scend was present, and we had to keep backing and filling to keep at an appropriate and safe distance, whilst making connection. From our stern we let adrift a life buoy with long line attached, whilst the small life boat from the other ship rowed towards our buoy and bent on to it the end of a coil of point line. This small line we soon had on board and hauled it through a three-ton cargo hook lashed to poop bollards to ensure safety for our own propeller.

In through starboard quarter pipe comes first the point line, which brings in turn a much heavier manila rope of 1¼-inch diameter, and following this comes the eye splice and shackle of a 2-inch steel cable rope. Our own heaviest steel cable rope, which we have meantime run on to midship drum of cargo winch is now shackled to and wire-lashed to stranger's hauser and paid out gently by reversed winch, the two eyes needing a little attention at the bridled hook, which, by the way, is only temporary at such a height. When three parts of our wire cable is out we give orders to the bridge officer to be exceptionally careful and not put any undue strain on anything, as we must get a preventer on the wire to keep it from getting away and at same time unwind from winch and take four turns round main mast near coat, and the remaining end is wound in figure-of-eight fashion round the port forward bollards in the same well deck. During all this preparation the vessel to be towed must keep her gear slack in the water. Now for the poop work, the temporary hook was eased away until wire towing line was flush with quarter deck pipe. Three similar hooks were put on the tow rope, two at break of poop and two at stern to act jointly as hangers and bridles. Preventive wire lashings of cargo runners were also triced to the poop, as it meant death to our own machinery if the tow rope should ever get under the counters, as could easily happen when towing from side pipe. We now announce to the disabled ship to heave away gently on her manila rope and get the wire cable under her starboard hawse pipe where it is shackled to anchor chain. Then with reversed windlass the 45-fathom shackle is lowered well in the water and the signal given that all is ready for starting to tow. Now is the moment when an over-heated captain or engineer can make a complete mess of otherwise good and sure work.

With heavy compound engines it is sometimes tricky to get a slow start, but with three or four cranks in the pit, the initial towing should be fairly safe. It is not out of place to give the engineer six or more dead slow orders with stop intervals before you get both vessels settled on their course. During this time two or three observant men are watching with argus eyes the different positions

Generated on 2024-07-26 09:51 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

where weaknesses may show. After the carpenter greases any likely places and the boatswain's men see to other minor duties, the engines should still be kept at, say, half speed for an hour and when eventually put to full ahead the engineer should give it to her, as he would a laxative to his baby, in a gentle, persuasive manner. The first night with the tow was a memorable one. I kept a better lookout astern than I did ahead, but instructed the forward lookout man to be very wide awake, and what did he report at 3 a. m. but another broken down steamer. We hailed her, but as she had plenty of stores and no life in immediate danger we could do nothing for her but promise to report at Bermuda. Her machinery had also given out and she belonged to the "hand-in-the-smokestack-company", Belfast.

When in Baltimore we read of this vessel's arrival in Bermuda. What betwixt fuel and towage, Bermuda must have a lucrative sideline in the lame duck business. I may now state that our vessel was about 3,500 gross tons and the tow a little larger, and we had absolutely no mishap on our 1,600-mile run, which was made in 12 days, an average of 135 miles a day. The weather became stormy after the second day and we towed through a northwest and a southwest gale, the tow actually shipping heavy water and rolling as much as we were with an ore cargo, as against a cargo of buoyant goods. We only had one ideal day to show what our towing power could do with everything in its favor, and seven knots an hour was made and kept up for 20 hours, a wonderful speed for a vessel that could only steam 10 by herself. Our tow rope never came out of the water; it was more than half submerged the whole of the time. The foxy pilots and tug captains eager for a share in the bounty met us 10 miles outside Bermuda reefs and pleaded with our captain to drop the vessel and let them take her through the channels to a safe anchorage on the plea that our gear was not safe and our maneuvering not to be depended on, and we had to give in, although we could have finished the towing right to the anchorage.

This tug in question afterwards received from the salvage courts something like $1,000 for two hours' work; we were all handsomely paid, too. After taking on fuel we went on our way rejoicing to Baltimore, and two New York ocean tugs came down to Bermuda and pulled our broken-down friend to Hoboken. When leaving the anchorage for the open sea again, the full crew of the salved steamer mustered amidships and gave us three lusty cheers, dipped their ensign and made the whistle talk, to which we most heartily responded by similar means of parley. When a vessel weighing into thousands of tons wishes to entice another such weight to follow her on a string, no lashing can be too strong, no supervising head too cool. A pointer worth mentioning is in connection with the steering: Don't do any hard-over maneuvers, and course altering must be done very gently, as non-towing craft have the bridles and other preventors to study. Whilst some things are common to all towing predicaments, each case has peculiarities of its own, and those on the towing vessel especially must have their minds made up as regards what action to take should the tow line part, bridles break, or niggerheads show weak bolts. In taking in heavy steel wire rope with a whip to winch or capstan, you will find that small chain snotters bite best and don't come home alone.

It is true that the built-for-towing craft has heavy auxiliary machinery and sampson posts on the after deck, but the ordinary cargo steamer has not, hence the confusion and awkwardness when towing has to be done and crude methods of substitution have to be used. This article may bring back memories to some of our readers who have still in their minds visions of parceling and worming the chafing nips of the manila and coir hawsers used in sailing tows, for a wind-jammer's tow rope ranked in importance with the chronometer and compass.

Classed by Lloyds Register

During 1914, 667 new vessels of 1,736,731 tons, have been classed by Lloyds Register. Corresponding with the general movement of the ship building industry the present figures show a decrease of about 155,002 tons on those for 1913. Of these vessels 612 of 1,731,154 tons are steamers, and 55 of 5,577 tons are sailing vessels.

With the exception of 32 small wood vessels of 693 tons, the material used in the construction of the whole of the tonnage classed was steel.

The output of sailing tonnage is so small as to be practically negligible. The percentage of sailing tonnage to the total tonnage classed for 1914 is 0.32 as against 0.87 for 1913. For the five years, 1908-1912, the mean of the yearly averages was 0.84 per cent.

A large number of vessels of special design were classed during the year. These comprised 47 vessels built on the longitudinal system of construction, with a total tonnage of 308,532 tons; 45 vessels, of 280,923 tons, for carrying petroleum in bulk, most of which are built on the longitudinal system and are included in the preceding figures; three steamers fitted with geared steam turbine engines; two steamers fitted with a combination of reciprocating engines and steam turbines, and 12 large vessels with oil engines; together with other steamers intended for channel and coasting purposes and numerous vessels of various special types, such as yachts, dredgers, river steamers and barges, motor vessels, tugs and fishing vessels.

The average size of the steamers classed during the past year is 2,829 tons. Excluding steamers under 500 tons, in order to avoid the diminution caused by small coasting vessels, fishing vessels, yachts, etc., the comparative averages for the past few years stand as follows: 1914, 4,551; 1913, 4,309; 1912, 3,718; 1911, 3,723; 1910, 3,341; 1909, 3,007; 1908, 3,308; 1907, 3,383; 1906, 3,356; 1905, 3,334.

During 1914, 52 steamers of over 7,000 tons each have been classed as compared with 45 in 1913, 25 in 1912, 26 in 1911, 28 in 1910, 17 in 1909, 17 in 1908, and eight in 1907. Eighteen of the steamers classed during 1914 were over 10,000 tons each, the largest being the turbine steamer Aquitania, of 45,647 tons.

Of the tonnage classed during the year, 1,372,542 tons, or about 79 per cent, have been built in the United Kingdom. Among foreign countries, the United States contributed the largest amount of tonnage (95,810 tons), then follow Germany (84,956 tons), Holland (53,216 tons), Japan (30,686 tons), and Denmark (27,271 tons).

This return includes a statement showing the countries for which the tonnage that has been classed was built. The tonnage built for the United Kingdom was 1,080 067 tons, and 656,664 tons for other countries. Among the latter Holland leads with 125,763 tons; then follow:—the United States with 95,559 tons; Germany, 79,911 tons; Denmark, 48,654 tons; Sweden, 46,433 tons; Japan, 44,716 tons, and Norway, 42,484 tons.

Elisha Webb & Son, Philadelphia, are the eastern agents for the Mulholland hatch fastener, which is in general adoption on all lake vessels.

J. W. Kennedy, 141 Cedar street, New York, is the eastern agent for the Mulholland lubricating sheave, which is made in four sizes, to fit all classes of vessels.

Jerry McCarthy & Sons, Buffalo are lake agents for the Mulholland hatch fastener and lubricating sheave.

Generated on 2024-07-26 09:51 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Motor-Driven Lifeboats

After July 1 Next Steam Vessels Carrying Passengers 200 Miles Off Shore Will Have to Carry One Motor-Propelled Lifeboat Under Davits

There is a wide field opening for the small gasolene or kerosene engine in lifeboats. After July 1 next all oceam steam vessels exceeding certain tonnage and carrying passengers will have to carry one power propelled lifeboat as part of the lifeboat equipment. The Steamboat Inspection Service has recently issued the following circular on the subject:

"On and after July 1, 1915, all ocean steam vessels of 2,500 gross tons carrying passengers, and whose course carries them 200 miles or more off shore, shall be required to be equipped with not less than one motor-propelled lifeboat as part of their lifeboat equipment; provided, however, that any vessel under the jurisdiction of this service may be allowed to carry one motor-propelled lifeboat as a part of the lifeboat equipment required on such steamer, except that on steamers carrying more than six lifeboats under davits, two of such lifeboats may be equipped with motors."

A number of the steamship lines are now purchasing lifeboats with power equipment installed or are installing engines in existing lifeboats. The latter is, of course, the more economical practice as there are scores of satisfactory engines on the market for this purpose. Certain steamship lines are beginning to regard it as an economical practice to have a small power-propelled boat aboard for running errands while in port. There is a wide field on the lakes for this kind of boat. There will undoubtedly be in the near future a remarkable development in the line of power boat installation in small boats that are carried under the davits of large steamers.

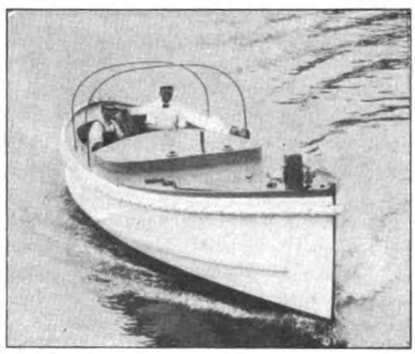


FIG. 5—PILOT SERVICE IN PANAMA CANAL

Life Power Boats

The Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York, have recently developed a class of life power boats which have met the approval of the board of supervising inspectors of steamboats and are being generally adopted aboard ship, especially by the navy department. Fig. 1 and Fig. 2 represent the whale boats of the United States battleship Connecticut. These boats have a 3-cylinder, 12-horsepower Speedway motor installed in them amidships. This installation has been in every way successful. Fig. 3 represents a dory type of lifeboat in which a single cylinder engine of 5-horsepower is installed. These boats are only 21 feet in length and are specially designed to be carried on the davits of torpedo boats.

Figs. 4 and 5 represent a type of boat which has been adopted on the Panama canal for pilot service and are unusually heavy and seaworthy. In fact, these boats have been able to go out in the roughest kind of weather while other craft have been forced to remain under shelter. The swells from the Atlantic ocean in Limon Bay are very heavy and it requires a boat of more than usual seaworthiness to navigate them. These boats are 35 feet in length and are fitted with a 40-50-horsepower,

FIG. 1—WHALEBOAT OF BATTLESHIP CONNECTICUT

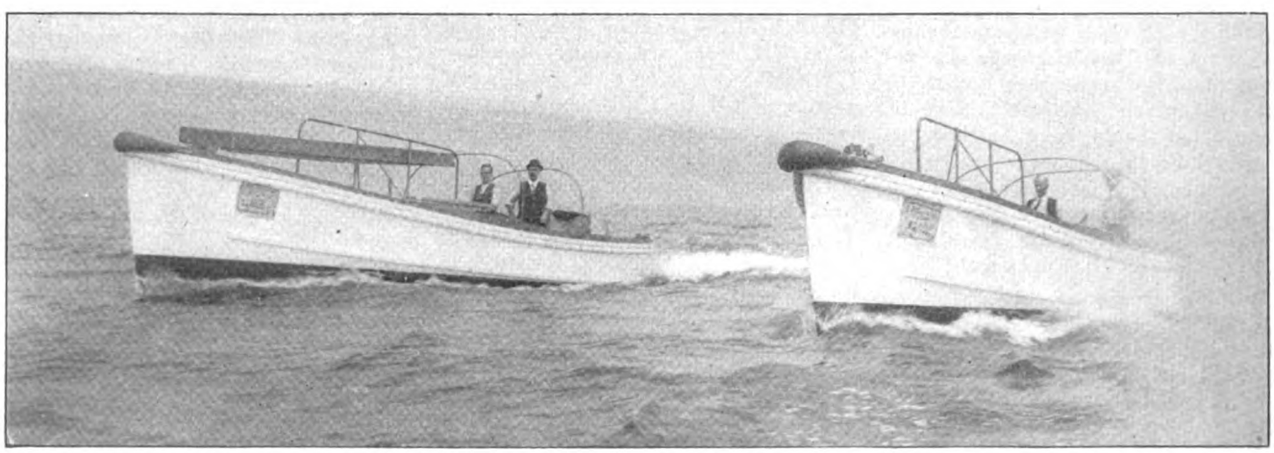


FIG. 4—TWO PILOT BOATS FOR SERVICE IN THE PANAMA CANAL BUILT BY THE GAS ENGINE & POWER CO.

Generated on 2024-07-26 09:52 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

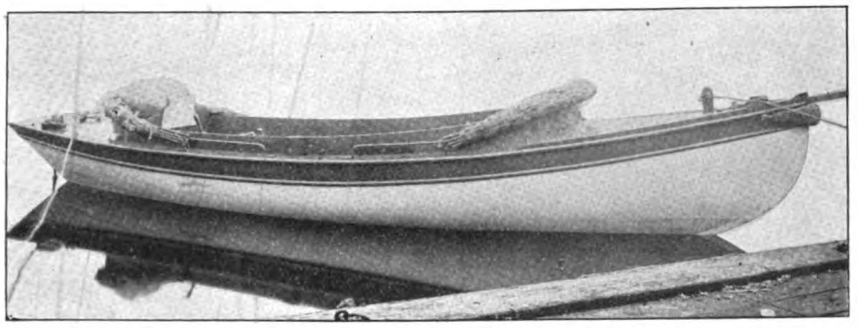


FIG. 3—DORY TYPE OF LIFE BOAT WITH 5 H. P. ENGINE INSTALLED BY THE GAS ENGINE & POWER CO.

4-cylinder Speedway motor underneath the hood or coaming covers. Eight of these boats have already been supplied to the canal commission and the hull model is one particularly adapted for life boat service.

Additional carrying capacity could be afforded were the motor installed at the stern and the entire forward part of the vessel left open for passenger accommodations. The railing which will be noticed in Fig. 4 (taken when these vessels were going under their own power for delivery alongside steamships in New York for transportation to Panama) are provided as a hand-rail or grab-rail for the steadying of the pilot in leaving the launch to go aboard the steamer outside the entrance.

Swan Island Wireless Station

What is probably the most remarkable record of wireless achievement by any radio station in the world is shown by the reports of the operators in the United Fruit Co.'s lonely but powerful station on Swan island, where, except for wireless, the inhabitants are cut off from the world for months at a time.

Situated in the Caribbean sea, 90 miles to the northwest of the coast of Honduras, 2,000 acres of coral and sand form Swan island and a peculiarly ideal location for a wireless station. Its perfect isolation makes it secure from interference by other stations and for this one important reason its efficiency is much greater than the stations on the mainland.

Eight years ago the United Fruit Co. built the plant to act as a clearing house for all the wireless business from its stations in New Orleans, 800 miles away; Santa Marta, 700 miles away and its smaller stations throughout Central America and the West Indies.

The most modern and powerful equipment in the world for the distance required has been employed as the United Fruit Co. keeps in daily communication with its many passenger steamers from the time they leave port until they reach their destination.

On many occasions the Swan Island wireless has caught the S. O. S. of a distressed ship and by repeating the call has brought timely aid. Since the beginning of the war the operators have tested the receiving power of their instruments and during their nightly vigils have heard the news of big battles in Europe.

The wireless told them of the sinking of Admiral Craddock's squadron off the Chilean coast, the bombardment of the Dardanelles, the sinking of the German commerce destroyer Emden, the British victory in the North Sea, the opening of the Panama-Pacific Exposition and the capture by Japan of the German fortress at Tsing Tau.

The station consists of four self-supporting steel towers set on a rectangle of 300 x 600 feet, and has installed two 50-horsepower Fairbanks-Morse oil engines, driving two 25 kilowatt, 500-cycle alternators, forming a part of the radio equipment.

Men going to Swan Island are under contract to either remain at least eighteen months or waive the return transportation. Those remaining full time are granted return transportation to the United States via one of the Central American ports with six weeks vacation on full pay. Some men have remained there two and a half years. No women are allowed on the island.

Power Life Boat for United Fruit Co.

In requiring power lifeboats as a part of the regular life-saving equipment of all steamships above a certain tonnage whose courses take them over 200 miles from shore the government has recognized the tremendous advantage of having a lifeboat propelled by a strong, serviceable, and reliable gasoline engine over a boat which must be dependent for its motive power upon the exhausted efforts of a shipwrecked crew laboring in desperation at the thole-pins. It is more than likely, now that the marine motor has definitely passed the experimental stage and reached a high standard of refinement, that in the near future, the old fashioned rowing lifeboat will be entirely superseded by powerful motor driven craft.

The United Fruit Co. have been quick to see the superior value of this type of boat and have been one of the first to comply with the new regulation. For a power plant they selected the 17-25-horsepower Sterling built by the Sterling Engine Co., Buffalo, N. Y. This motor is a 4-cycle, 4-cylinder en bloc motor, the cylinders having a bore and stroke of 3¾ x 5½. It develops 17 horsepower at 600 revolutions per minute, 25 horsepower at 1,000 revolutions per minute and 30 horsepower at 1,200 revolutions per minute. Its equipment consists of high tension magneto,

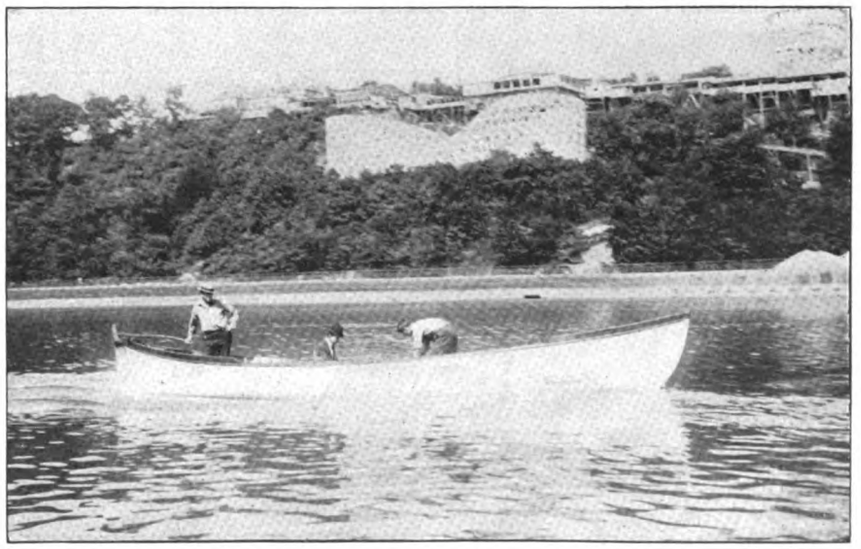


FIG. 2—WHALEBOATS OF THE UNITED STATES BATTLESHIP CONNECTICUT BUILT BY THE GAS ENGINE & POWER CO.

Generated on 2024-07-26 09:52 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE PASTORES MAKING 9½ MILES AN HOUR WITH SIX PERSONS

special Sterling rear starter, reverse gear and clutch, positive oiling system, and a number of other features which make it especially commendable for this type of service.

The steamship Pastores of the United Fruit Co. has had four of these power lifeboats assigned to it. The boat is a full-bodied craft, 27 feet by 8 feet 5 inches clinker style and exceptionally strong, built by George Lawley of Boston. The accompanying illustrations shows this boat laden with 45 people and making a speed of eight miles per hour and also one with six persons making 9½ miles per hour.

Very Serviceable Craft

The Gray Motor Co., Detroit, Mich., recently received a letter from Ross F. Wright, lighthouse keeper at Manitowoc, Wis., on the performance of his raised deck cruiser Old Dog, equipped with a 12-horsepower Gray motor which bespeaks very highly of the seaworthiness of the boat and the serviceability of the engine. The letter reads:

OLD DOG

"I am sending you some facts concerning my raised deck cruiser Old Dog. In the spring of 1913, I replaced my Model "R" 12-horsepower Gray with a 16-horsepower Model "T", which proved a bear. During the season of 1913 the boat ran 1,015 miles, and the season of 1914 she ran 1,380 miles. The amount of gas burned during the 1,380-mile run was only 255 gallons. I call that good.

"Being in the United States lighthouse service, the Old Dog has the opportunity to run a sort of private life saving station around this port. Several pleasure parties have been towed in while in distress. On one occasion five boys were blown out into the lake and were drifting helplessly before a gale of wind. Old Dog towed them in after much work and an awful sea lashing. For this act the department of commerce, lighthouse service, sent me a letter of commendation — this being the third I have received for similar service.

"Whether conditions make no difference to the Old Dog. She has often finished the day's run when other boats twice her size have made for shelter. I give the engine credit for this fact because it can be depended upon every minute, and it runs and starts so easy that my wife runs it as easily as myself.

"This may sound lumpy, but it's a fact—the only repairs the engine has received is one new point for the coil, price 35 cents."

Fairbanks, Morse & Co.

Fairbanks, Morse & Co., Chicago, are persuaded that there is a large opening for the makers of small marine engines in the life boat field and believe that their kerosene engine is well adapted for this service. This company has experimented with a kerosene engine for the past few years, owing to the increasing cost of gasoline. Some very radical changes obviously appear in this type of engine to permit the successful combustion of kerosene. It is contended that kerosene will develop as much power gallon per gallon as gasoline.

Buffalo Gasolene Motor Co.

The Buffalo Gasolene Motor Co., Buffalo, recently sold to the government, two of their engines for installation in life boats. The two-cylinder medium speed model of this company is built in two sizes for tenders and small open boats and is easily adapted for this service. The company issued a catalogue descriptive to the least detail of this type which will be sent to anyone interested.

Universal Motor Co.

The Universal Motor Co., Oshkosh, Wis., has specialized on a single type of motor of about 7 horsepower. They make just the one size, known as the Universal 6-8 horsepower, adaptable for boats from 16 to 24 feet in length. These engines are well adapted for lifeboat purposes.

THE LIFE BOAT OF THE PASTORES EQUIPPED WITH STERLING ENGINE MAKING 8 MILES AN HOUR WITH 45 PERSONS ABOARD

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Kahlenberg Bros. Co.

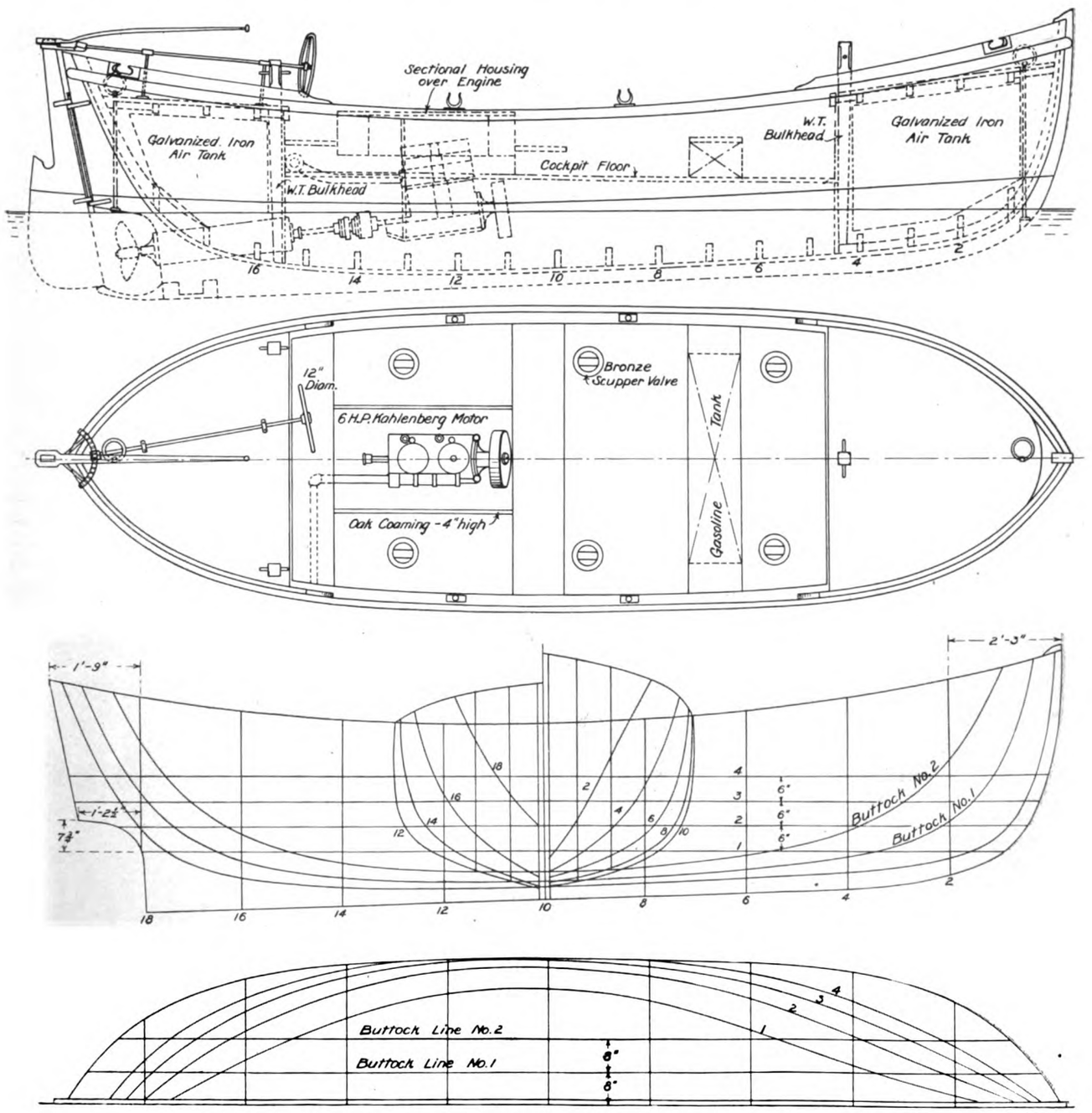
Kahlenberg Bros. Co., Two Rivers, Wis., have supplied the United States government with marine engines which have been installed on life boats carried by the lighthouse tenders. Several of these boats have been in use for the past five years. This company also furnishes nearly all of the engines that are used in the eleventh lighthouse district and which are placed at their different stations in Lake Michigan. The company also recently furnished a complete power boat for lightship No. 95, which is illustrated in the accompanying drawing.

This is a type of boat that should meet requirements on either passenger or freight steamers. It is fitted with a watertight deck with proper scuppers. There is a coaming around the engine hatch and this hatch in turn can be completely covered up with a removable hood. In other words, it is built along the same lines as a regular self-bailing surf boat. Both the captain and engineer of Lightship No. 95 say that the life boat is satisfactory in every way.

Regarding the Kahlenberg engine, E. F. McDonald Jr., of Chicago, wrote the company as follows:

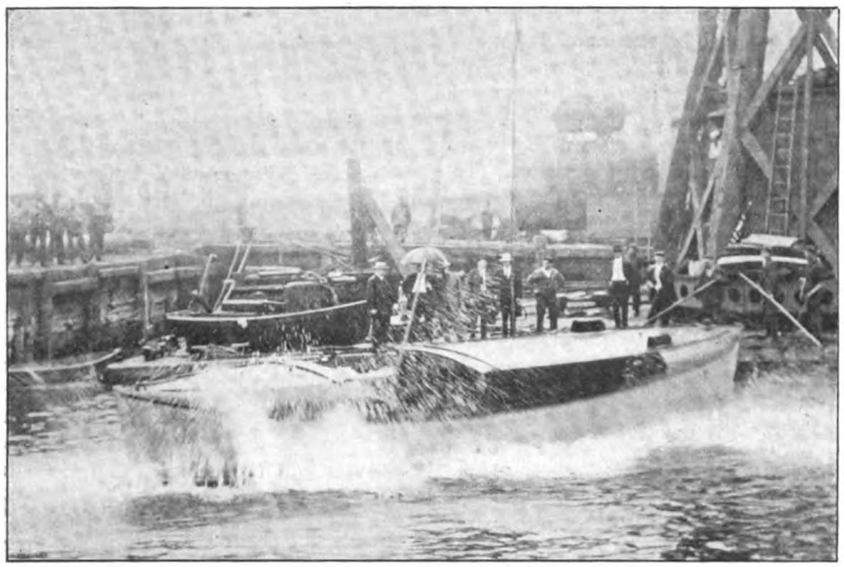
"After having completed a cruise of over 3,000 miles on my yacht Thelma this summer, without having had one moment's trouble in any respect with my Kahlenberg engine, I think it is only right that I should express my appreciation of your wonderful motor. Twelve hundred miles of this journey through the Great Lakes were covered by me with absolutely no one on my boat other than myself, and while I have not a one-man control, I had no difficulty in any way, because of the fact that my motor required no attention other an occasional oiling.

"Relative to the kerosene burning attachment which you applied to my engine early in the season, would say that this has not only materially reduced the cost of fuel, but it has en-



SECTIONAL DRAWING OF KAHLENBERG LIFE BOAT INSTALLED ON LIGHTSHIP NO. 95

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



THE HOLMES LIFE BOAT RELEASED RIGHTING HERSELF IN TEN SECONDS

abled me to attain approximately one mile per hour more in speed.

"I cannot say too much for the Kahlenberg engine, as this is the sixth make of marine engine which I have owned and the first that has given absolute satisfaction in every respect."

Wolverine Motor Works

The Wolverine Motor Works, Bridgeport, Conn., manufacture one engine that is especially suitable for power life boat service. This is their 12 horsepower model "B" engine which turns a propeller wheel 22 inches in diameter at 500 to 550 revolutions per minute.

Fulton Manufacturing Co.

The Fulton Manufacturing Co., Erie, Pa., are just entering the power life boat market and recently sold one of their 12-16 horsepower engines to be installed in a life boat. The company also makes a self-sparking 10-12 double cylinder engine which is especially adaptable for life boat service, on account of the self-spearking igniter which completely does away with all batteries, coils, timers, vibrators and wiring. On the double cylinder engines there are two igniters giving two entirely separate ignition systems. The spark is independent of the speed of the engine and is as large when the engine is turned over by hand as when it is running at full speed. There is absolutely nothing to be adjusted and it is both waterproof and foolproof. The magnetism is guaranteed for three years but will last from five to ten years and then the magnets can be easily recharged. The advantage of this for a life boat which may swing in the davits for months without use is quite apparent.

Trump Bros. Machine Co.

Trump Bros. Machine Co., Wilmington, Del., will send to anyone interested a catalogue descriptive of their line of pilot marine engines and will submit blue prints giving instruction for their installation in life boats.

Palmer Bros., Cos Cob, Conn.

Palmer Bros., Cos Cob, Conn., have sent their motors to all parts of the world and they are well known from Finland to Australia. They manufacture several types of engines that would be suitable for installing in lifeboats.

Loew-Victor Engine Co.

As stated in last month's *Marine Review,* the Loew-Victor Engine Co., of Chicago, are installing engines in the lifeboats of the Pacific Mail Steamship Co.'s fleet and are building up quite a trade for this engine among Pacific coast interests. The particular engine installed in the steamers China and Manchuria is built offsets, that is, the crank shaft is not in the dead center of the machine but is offset about 1½ to 2 inches, varying with the size of the motor. The advantage of installing this engine in already existing boats is that it is possible to carry the propeller shaft out through the stern without drilling a hole through the stern post. The structure of the boat is thereby not weakened and the engine is not sufficiently out of line to have any influence on the boat's stability.

Tests of the engine proved its capacity to drive the lifeboats with 51 men aboard at a speed of 7.8 miles per hour. The engine takes up very little room and can be protected by a metallic hood from the sea.

Holmes Motor Co. Lifeboat

Herewith are shown the plans of the lifeboat that the Holmes Motor Co., West Mystic, Conn., demonstrated before the United States steamboat inspectors at Fletcher's yard in Hoboken, N. J. The boat has been exhibited to all the different steamship companies in New York and has met with favor. This boat has many qualifications in that it cannot be sunk and if capsized will right itself immediately. It cannot be swamped as the only place where the water can get in at all is the cockpit and this will bail itself in a few minutes.

The photographs show the nature of the tests that the boat underwent. The motor of this boat is in the stern compartment and is entirely separated and apart from all connections with the cabin. By this arrangement not only

THE HOLMES LIFE BOAT UNDER WAY WITH CABIN FILLED WITH WATER AS IF STOVE IN

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Isherwood System of Construction

Showing Stern Construction Abaft No. 30 Bulkhead—Web of Transverse Omitted to Show Arrangement of Longitudinal

By Robert Curr

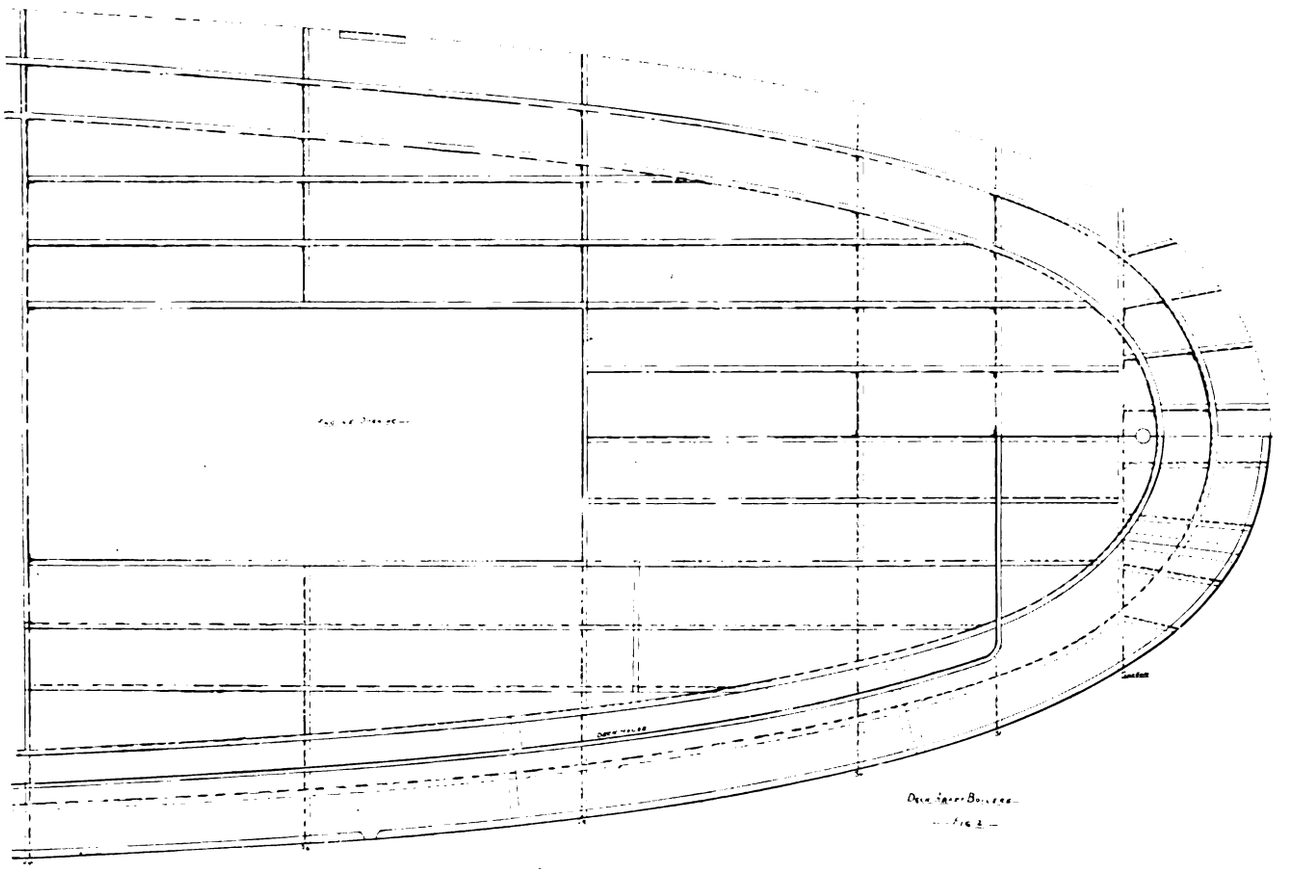


FIG. 3—DECK ABAFT BOILERS

FIG. 1 shows the stern construction abaft No. 30 bulkhead. The webs of transverses are omitted on the port side in order to show the arrangement of the longitudinals.

Longitudinals P and R run continuous from the fore end of the engine room bulkhead No. 24 and follow the plating edges which are parallel to the deck line.

Longitudinal O is omitted from No. 24 to No. 30 because of the main deck which runs from No. 24 to the stern post and forms the after peak top abaft No. 30, as shown in Fig. 1.

O longitudinal from No. 30 follows the line of the plating around the stern forming an half oval ring from the after peak bulkhead.

Longitudinal N runs from the peak deck to the transom frame, forming a girder as well as a stiffener for the shell plating.

Longitudinal M. is fitted between No. 31 and the stern post and also forms a girder as well as a stiffener for the shell plating.

The peak top plating is cut off showing the arrangement of stiffening under same. e and f are transverse frames 6 x 3½ inches x 11.7 pounds per foot with 5/16-inch floor plates, 5 feet deep and beams same size as frames with 5/16-inch bracket plates.

Transverses No. 31 and transom frame are practically the same as the other transverses, being slotted out for the shell and deck longitudinals.

The transom is made out of a solid plate and cut out in the center for the clearance of quadrant and chains.

The shell plating is as shown on the expansion plan with the exception that E strake is continued to the boss and the sheer strake around the stern is in two plates forming two strakes from No. 31 transverse.

Fig. 2 shows the deck longitudinal arrangements from No. 24 to the end of the stern.

The two longitudinals next the ship side run parallel to the ship's side

*This is the twenty-second of a series of articles on the Isherwood system of construction which began in the September, 1912, issue of *The Marine Review*. The first article dealt with the general specifications of the steamer; the second with the sheer, half-breadth and body plans; the third explained the method of getting the sheer; the fourth dealt with the longitudinal and transverse framing; the fifth with offsets; the sixth with the shell plating; the seventh with the shell plating expansion; the eighth with the arrangement of plates and angles forming the spar deck; the ninth with the transverses; the tenth with bulkhead construction; the eleventh with the connection of longitudinal frames to the bulkheads and transverses; the twelfth showed the interior framing between the tank top and spar deck; the thirteenth showed the amount of work that can be put together in a Great Lakes ship yard in a few hours; the fourteenth showed details of riveting in shifts of butts; the fifteenth considered the subject of butt straps and laps; the sixteenth discussed Lloyds rules and their application; the seventeenth showed certain details of the transverse and longitudinal system; the eighteenth gave calculation for the neutral axis and moment of inertia for the transverse framed vessel; the nineteenth showed the materials in the section of the Isherwood vessel; the twentieth showed the arrangement of framing in the engine space extending from frames 24 to 30; the twenty-first showed the bow plating and framing.

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

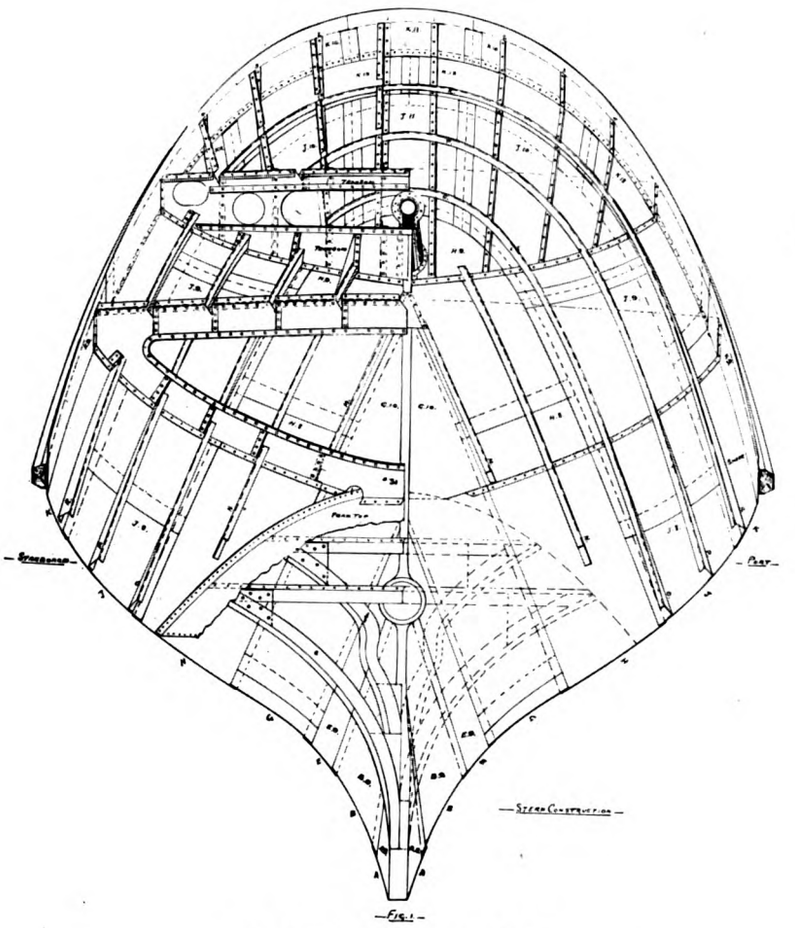


FIG. 1—STERN CONSTRUCTION

from the fore hatch and are continuous.

The deck plating is lapped on the longitudinals and the lap of the stringer plate comes on the second longitudinal from the ship's side.

This arrangement may look extravagant, but it shows what can be done in taking care of the steering engine, quadrant and blocks and prevent vibration.

Cruising from Detroit to Miami

Capt. H. J. Davis, well known on the great lakes as an experienced navigator, left Detroit in October last in the gasoline launch Turtle and sailed her to Miami, Fla. He reached the ocean via the Erie canal and followed the inside course from New York to Beaufort, N. C. There is a stretch of over 200 miles from Beaufort, N. C., to Georgetown, S. C., where no inside route exists and it is necessary for the passage to be made in open water. Capt. Davis had quite a time navigating this stretch but made it successfully. Writing about his trip to *The Marine Review* he says:

"I put out to sea at Beaufort, N. C. After being out about three hours the wind commenced to blow hard from the southward. I was in company with two other cruisers which I outdistanced and left them far behind. All the time I was looking out to get into some inlet, which is no easy matter, especially for a stranger. After passing two inlets which I could not enter I got into the third one which was Rich inlet. The other two cruisers which I was in company with did not see their way clear to come in and one of them foundered but no lives were lost. I don't know what became of the other. Next morning I came out of Rich inlet and made around Cape Fear with the wind stiff from the northeast and we made Southport. The next morning the wind was north, gentle, but when I put to sea the wind hauled around northeast and commenced to blow and about 2:00 P. M. I got abreast Little river. At this time I had no choice as my little cruiser could not stand it any longer so I drove her through the surf and got into Little river without any damage. Of course, it was taking a big chance as the water was at low tide. Well, I stayed in Little river two days, as it was blowing a gale outside. Then I got under way and went to Georgetown and I got into the above place about midnight and received quite a thrashing before I got in there, but I had everything lashed and made secure. The only damage was to myself, as I was wet to the skin.

"The distance from Beaufort to Georgetown is 220 miles and from Detroit, 3,000 miles. The rivers and creeks are very crooked as you can well imagine when I say that I passed one house five times by running 15 miles, and when I got past it, was only about 1,500 feet by it. There are lots of places like the above one. Besides, the channels are very shallow. Alligators can be seen flopping off the banks of the creeks when they see a boat coming along. I was going along the Florida coast one day and I saw an awful splash in the water. When I went over there I saw two sharks had a hold on a sea cow, but the sea cow managed to get away. They must have had a hard fight as the water was bloody."

Capt. Davis has spent the winter at Miami taking fishing parties out in the Turtle and has enjoyed some rare sport.

GASOLINE LAUNCH TURTLE. CAPT. DAVIS IS STANDING IN THE BOW

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The A B C of Iron and Steel, with a directory of the iron and steel industry, written by the collaboration of 16 authors and edited by A. O. Backert; 338, 7½ x 10½-inch pages, bound in cloth or leather; 222 illustrations; issued by the Penton Publishing Co., publisher of The Iron Trade Review, Cleveland; price $5, postpaid.

Although the literature of the iron and steel industry is extensive, practically all of it is of a technical nature which presupposes a considerable knowledge of all branches of the business on the part of the reader. The industry, however, is so large and its ramifications so extensive that there are a great many persons connected with it who have had no opportunity to become personally familiar with all of its phases. Also, there are a large number of people in various walks of life who are anxious to become familiar with the methods and processes of one of the world's greatest industries. Every well-educated man, be he engineer, attorney or salesman, should have a broad, practical knowledge of the whole scope of the iron and steel business. For this reason, the demand for an elementary work covering not only the practical, but the commercial phases of the industry, has been insistent. It is for the purpose of meeting this demand that the *A B C of Iron and Steel* is offered. This volume is intended to furnish a simple, concise, but at the same time comprehensive exposition of the primary processes involved in the conversion of iron ore into finished forms. Its scope is accurately indicated by its title. No effort is made to furnish an exhaustive treatment of the subject; instead, the aim is to present the leading facts regarding the manufacture of iron and steel in graphic readable language, free from technicalities.

Natural Sequence of Subjects

The subjects are treated in natural sequence. Five chapters are devoted to iron ore, covering thoroughly mining operations, beneficiation, transportation, handling problems and valuation. Separate chapters are devoted to beehive and by-product coke. Following this, the book takes up the manufacture of pig iron, wrought iron, crucible steel, bessemer steel and open hearth steel. After covering the manufacture of the primary materials, their conversion into finished forms is considered and chapters are presented on the rolling mill industry, on wire and wire rods, on the production of gray iron, malleable and steel castings, and on the manufacture of electric steel.

Each process is described by a man who is a recognized authority on the principal subject on which he writes—an established leader in his field. The book, therefore, represents the thorough knowledge and years of practical experience of the foremost men in every branch of iron and steel-making. The authors include such men as John Birkinbine, Philadelphia, the leading authority on iron ore; Kenneth Seaver, chief engineer, Harbison-Walker Refractories Co., Pittsburgh; F. H. Kindl, consulting engineer and former partner of Andrew Carnegie; Kenneth B. Lewis, manager of the wire-drawing machinery department of the Morgan Construction Co., Worcester, Mass., and R. A. Bull, manager of production, Commonwealth Steel Co., St. Louis, and president of the American Foundrymen's Association. In dividing the work among a number of contributors instead of presenting a volume embodying ideas of a single author, who would necessarily have a somewhat limited vision regardless of his capabilities, an opportunity was created to present each subject in an adequate, comprehensive and accurate manner. At the same time the reader receives the benefit of a variety of viewpoints.

It is a common-sense book, written expressly to fill the needs of every man affiliated with or in any way interested in the iron and steel industry. Technical language and long discussions of mechanical details have been carefully avoided; each chapter is written in simple, every-day English. Nevertheless, an effort has been made not to sacrifice accuracy and completeness for the sake of simplicity.

To show the commercial as well as the manufacturing progress of the iron and steel business, several pages of statistical matter are presented covering the production, the imports and the exports of every iron and steel product from earliest records down to the present time. The shipments from each of the mines on the Lake Superior ranges also are carefully tabulated, thus furnishing a complete statistical survey of the growth of the iron and steel business in the United States.

Directory a Feature

The book also includes a directory of the iron and steel works of the United States and Canada, giving the names of companies, their products and the names of their officers. The directory is classified according to names of companies, and also according to products. It was carefully compiled from original data collected during the closing months of 1914 and was revised up to the time of going to press. It therefore constitutes the only complete, up-to-date directory of the iron and steel business in existence, giving not only the names of the companies and what they manufacture, but the names of their executives, including purchasing agents. An effort has been made to treat the entire subject along lines that are essentially American, it being the intention of the publisher to present a book which will serve to epitomize the progress of the iron and steel industry in the United States.

"Structural Design of Warships", by Commander William Hovgaard, Professor of naval design and construction, Massachusetts Institute of Technology, Boston, 384 pages, 186 illustrations, price $5.50. Spon & Chamberlain, 123-5 Liberty street, New York, publishers.

This work is based on a series of lectures prepared for a course in naval construction which was established by

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

the Massachusetts Institute of Technology in 1901 for officers of the United States navy detailed to take this course in preparation for the duties as naval constructors. The lectures have been developed during the last 13 years and, having now taken a fairly permanent form, it was thought desirable to print them, partly for reasons of instruction, and partly in the hope that they might be useful to naval constructors and designers of warships in general.

The course in naval construction extends over three years and consists of lectures and design work. The general plan of the lectures will be here briefly outlined in order to show the place which the present work occupies in the course.

First year: A historical account of the development of warships, beginning with the introduction of steam power, iron and armor.

Preliminary design, comprising a discussion of the different types of warships, determination of the principal elements of design, construction of lines, stability, seaworthiness, general distribution of weights, weight calculations, watertight subdivision, and vibrations of vessels.

Second year: Structural designs of warships, comprising materials used in hull construction, strength and strength calculations, riveted joints, and main structural features. Preliminary design and installation of boilers, engines, and propellers, as far as these problems concern the naval architect. Coaling and coal stowage. Liquid fuel. Rudders and steering gear.

Third year: Drainage. Ventilation and heating. Anchors and anchor gear. Disposition and installation of artillery. Ammunition, ammunition transport and stowage, design of ammunition rooms. Torpedo installations. Effects of gunfire. Resistance of armor. Principles of the design of protection. Protection against submarine attack. Conning towers.

The present volume covers somewhat more than the first half of the second year's lectures. It presupposes a general knowledge of the theory of naval architecture as well as such familiarity with warships as is ordinarily possessed by young naval officers.

"The Scientist" is the title of a house organ published by the Goheen Mfg. Co., paint engineers, Canton, O. The uses of paints are discussed at length from a scientific standpoint and in the March number of this interesting publication the shop coating of iron and steel, the painting of steel cars and the waterproofing and dampproofing of concrete will be considered in all of its various phases. A binder is furnished gratis for this house organ of a sufficient size for 12 numbers.

THE AMERICAN BARK WILLIAM P. FRYE SUNK BY A GERMAN WARSHIP

American Bark William P. Frye

The American bark William P. Frye, named after the famous United States senator from Maine whose name for years was identified with the American merchant marine, was a fine vessel. The sinking of the William P. Frye in the South Atlantic, January 28, by the converted German cruiser Prinz Eitel Friedrick has caused a pang of regret in American marine circles, for this ship was a splendid representative of the rapidly diminishing fleet of windjammers flying the United States flag. The Frye was the second largest sailing ship under the Stars and Stripes, registering 3,774 tons gross, being exceeded only by her sister ship, now the Star of Lapland, measuring 3,381 tons gross.

The Frye sailed from Seattle at 12:45 P. M. Friday, Nov. 6, with a cargo of wheat measuring 187,953 bushels and valued at that time at $207,748. The cargo upon delivery would have been worth close to $275,000 owing to the increase in the values of wheat. The vessel cleared for Queenstown, for orders, this being a customary procedure where the cargo is not sold at the time the ship sails. Upon arrival at Queenstown, the cargo having been sold in transit, the vessel is ordered to the discharging port. The Frye was built at Bath, Me., in 1901 and belonged to the celebrated Sewall family of that port. On her last voyage to the Pacific coast she carried a cargo of coal from Baltimore to the United States navy yard on Puget Sound.

The bark Edward Sewall, of the same fleet, also took wheat from Seattle, leaving this port Oct. 21, last, and arriving at Dublin, March 6.

Destroyer Tender

The United States destroyer tender Melville was launched last month from the yard of the New York Shipbuilding Co., Camden, N. J. The principal dimensions, etc., are as follows: Length, 400 feet; beam, 54 feet 3 inches; depth, 36 feet 6 inches; draught, 20 feet; speed, 15 knots.

This vessel has been built to serve as a tender to torpedo boat destroyer flotillas, and as such is especially equipped to perform the duties of a supply, depot, repair shop, and escort to this particular class of vessel. Ample provision is made for the stowage of stores, fuel and ammunition, with which to replenish the supply of the vessels of the flotilla, in addition to that necessary for the vessel's own use. Large machine and general repair shops are fitted with the necessary machinery with which to effect general repairs to the vessels, thus keeping them in good order and obviating the necessity of returning to dock yards for minor repairs. The vessel is fitted with eight 5-inch 51-caliber rapid fire guns for her own protection or for offensive purposes, also two 3-pdr. saluting guns. Two powerful searchlights are fitted, one forward and one aft. Two masts are fitted with boom for handling stores, etc., overboard and with yard for signaling purposes, also with lookout station; the masts serve also for the suspension of the wireless telegraph aerials. The vessel has ac-

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

commodations for a full complement of 356 officers and men, including flotilla commander and staff, and 51 extra men, of all grades, for relief of the flotilla crews.

The deck machinery consists of a steam windlass forward, towing machine aft, fitted with warping ends, two electric and two steam winches for working cargo booms, boat gear, etc. The hand and steam steering gear is fitted at after end in 'tween decks with shafting to after steering station and telemotor control from navigating bridges amidships. The propelling machinery is located amidships and consists of two Parsons' turbines turning a single screw shafting through reduction gearing, steam being supplied by two Babcock & Wilcox water tube boilers. Miss Helen Neel, granddaughter of the late Admiral Melville, christened the vessel.

The Seaman's Bill

What the New Shipping Law May Cost American Shipping—An Analysis of Its Various Sections

By Welding Ring

CONGRESS has passed, in an amended form, the so-called "Seamen's Bill" that was pending before it for several months, and on Feb. 28 the President signed it. Its general provisions apparently become active on Nov. 1, except where treaties with other countries will prevent.

There are three classes of vessels differently affected by the new law. A large part of it pertains to passenger vessels almost exclusively, because of new "Safety at Sea" requirements, necessitating the expenditure of considerable sums for life-saving apparatus and life-boats. River boats and sound steamers do not have exactly the same requirements as passenger ships for ocean transportation and the Great Lakes. Presumably, the addition to the costs of water transportation from this part of the law will be in the form of fixed charges on the additional capital that will be required for the new equipment, but there is a possibility that when the regulations that the United States board of supervising inspectors and the secretary of commerce decide upon, based upon the law, are promulgated, it will be found that additions to the crew will frequently be necessary on passenger ships, in order that every one of the additional life-boats required by the statute may be manned in the required way. Nobody is exactly sure, today, when these provisions about safety go into effect. July 1 is named, but the wording is somewhat ambiguous. Seagoing passenger lines will all have to equip with new appliances. All foreign ships leaving American ports come under these requirements and in estimates of competition, therefore, American shipping seems not to be adversely affected.

Americans who wish for an increase in the country's foreign commerce and for a growth of our mercantile marine are concerned more directly with the probable effect of the new law on the operating costs of ocean freight ships. Of course any great increase in an American merchant marine must include the establishment of lines with fast passenger and express ships, but that is for the future. How much more is the new law going to make the operation of a 7,000 or 10,000-ton freight steamer cost? That is the live question right now.

That costs will be higher is certain, and one of the most unfortunate features of the situation is that nobody is certain what the effect will be. Certain increases can be figured out by owners of ships for their particular vessels, but there is an uncertain further element of increase that has to do with the maritime labor market which only time will reveal.

Our navigation law does not specify the number of crew that ships must carry, but it empowers supervising inspectors at the ports to make regulations about crew requirements. In practice there is virtually a general regulation, covering the ships of all our ports, and it compels United States merchant ships to carry more crew than competing ships under foreign flags carry.

Now the new law will add to these already higher labor costs in several ways.

First, a new requirement added by the "Seaman's Bill" just passed and approved is that no United States vessel of 100 tons or more may leave any home port with a crew of which less than three out of every four men understand English. The law reads:

"A crew, not less than 75 per centum of which, in each department thereof, are able to understand any order given by the officers of such vessel," which might be construed to mean that the men must be expert navigators, or even include Lascar crews of the Pacific, that make excellent seamen and understand exactly what they are to do. But the law is understood to mean that they must understand English. Some ship owners think they must be United States citizens, but there seems to be nothing in the law requiring citizenship.

The practical effect of this requirement, some operators of the ships say, will be to make it next to impossible to man our present sample merchant navy. The vessels of our Atlantic coast shipping, both coastwise and overseas, are manned largely by foreigners. Officers of United States ships must be citizens. Swedes, Norwegians, Finns, Russians, Spaniards and Latin-Americans fill the crews, as seen on some actual lists, with only an occasional citizen of this country. On the Pacific there is a large preponderance of Lascars, Chinese and other Orientals. It must be remembered that all the employes upon a ship are "crew". Just how deep the requirement cuts nobody knows. It might rule out nearly all the Lascars, Chinese and Japanese, because it must be "any order". On the Atlantic, where the line is to be drawn on a language test, on "Broken English", who can tell?

Second, the law creates what is practically the "licensed able seaman". From 40 to 55 per cent of future crews, the percentage progressing for four years, exclusive of apprentices and officers, must be of a rating not less than "able seamen". Able seamen for ocean work must be 19 years old and must have had three years' service on deck at sea or on the Great Lakes. For Great Lakes work and that on bays, sounds, etc., the requirement is 19 years age with 18 months service. Graduates of school ships are able seamen after a year's service at sea. But it is no longer possible to hire seamen upon their experience only. Able seamen must have passed an

*From *The Americas*, published by the National City Bank, New York.

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

official examination, for this new provision appears in the law:

"Provided, that upon examination, under rules prescribed by the department of commerce, as to eyesight, hearing and physical condition, such persons or graduates are found to be competent."

There is an added provision for an inferior grade of able seamen, rated so after experience of 12 months on deck, of which grade not more than one in four of a ship's crew may be shipped.

Suggestion of Citizenship

A suggestion of citizenship requirement is found in a provision that anybody may apply to local inspectors for examination, by making affidavit "showing the nationality and age of the applicant and the vessel or vessels on which he has had service."

Third, the new law removes all penalties excepting loss of a seaman's personal effects and half the wages due him for desertion of his ship either in a home or a foreign port.

The peculiar provisions of the law in this regard seem to ship owners to give unlimited possibilities of mischief and expense in the operation of their ships. Heretofore, sailors have shipped for full voyages or longer, and a master could make a contract for withholding all wages for desertion, also have a deserting seaman arrested in a home or foreign port and sent to jail for a month. Consular officers abroad were charged in the old law to discountenance insubordination by every means in their power and to "reclaim deserters". All reference to prosecution for desertion has been taken out of the law and Section 16 says:

"That in the judgment of congress articles in treaties and conventions of the United States, in so far as they provide for the arrest and imprisonment of officers and seamen deserting or charged with desertion from merchant vessels of the United States in foreign countries, and for the arrest and imprisonment of officers and seamen deserting or charged with desertion from merchant vessels of foreign nations in the United States and the territories and possessions thereof, and for the co-operation, aid and protection of competent legal authorities in effecting such arrest or imprisonment and any other treaty provision in conflict with the provisions of this act, ought to be terminated, and to this end the President be, and he is hereby, requested and directed, within 90 days after the passage of this act, to give notice to the several governments respectively, that so much as hereinbefore described of all such treaties and conventions between the United States and foreign governments will terminate on the expiration of such periods after notices have been given as may be required in such treaties and conventions."

Sailormen have heretofore had the privilege of drawing half the money due them on arrival at any port. But the master has been able to stipulate this privilege away by special contract, The new law makes such stipulations void. The man must be paid:

"Provided, such demand shall not be made before the expiration of, nor oftener than once in five days. Any failure on the part of the master to comply with this demand shall release the seaman from his contract and he shall be entitled to full payment of wages earned. And when the voyage is ended every such seaman shall be entitled to the remainder of the wages which shall then be due him."

The man gets half of his money, and if he then deserts, cannot be prosecuted. The law specifically applies this privilege of drawing half pay to the seamen of foreign ships in American ports. With the withdrawal of prosecution, desertion on half pay is possible to them also.

As an illustration to show the difficulty of carrying out this provision some of the steamers that are loaded for West India ports, and also ports of the Pacific coast, call at as many as 15 to 20 different ports before voyage is completed. Providing they are five days apart, it would enable seamen to collect their half pay at least 15 or 20 times during an outward voyage. To carry this out would necessitate the employment of a bookkeeper to keep the accounts for the master. This is an extreme illustration, but it is quite possible under the wording of the law.

Desertion Clause Omitted

These aids to desertion in the new law are not fully appreciated unless it is understood that vessel owners are subject to a heavy fine for leaving port without a full complement of crew. The law says that the master must ship, if obtainable, substitutes "of the same or higher rating". The old law had this provision, but the wording was "of the same grade or rating and equally expert".

Another provision that probably necessitates an addition to crews on United States ships requires that crews shall "be divided into at least two, and the firemen, oilers and water tenders into at least three watches, which shall be kept on duty successively for the performance of ordinary work incident to the sailing and management of the vessel. The seamen shall not be shipped to work alternately in the fireroom and on deck, nor shall those shipped for deck duty be required to work in the fireroom, or vice versa."

Also:

"While such vessel is in a safe harbor no seaman shall be required to do any unnecessary work on Sundays or the following named days: New Year's Day, the Fourth of July, Labor Day, Thanksgiving Day and Christmas Day, but this shall not prevent the dispatch of a vessel on regular schedule or when ready to proceed on her voyage. And at all times while such vessel is in a safe harbor nine hours, inclusive of the anchor watch, shall constitute a day's work."

Must Understand English

The law supplements the requirement that 75 per cent of the crew shall understand English and be examined able seamen by the provision that:

"The collector of customs may, upon his own motion, and shall, upon the sworn information of any reputable citizens of the United States setting forth that this section is not being complied with, cause a muster of the crew of any vessel to be made to determine the fact; and no clearance shall be given to any vessel failing to comply with the provisions of this section: Provided, that the collector of customs shall not be required to cause such muster of the crew to be made unless said sworn information has been filed with him for at least six hours before the vessel departs or is scheduled to depart. Provided further, That any person that shall knowingly make a false affidavit for such purpose shall be deemed guilty of perjury and upon conviction thereof shall be punished by a fine not exceeding one year, or by both such fine and imprisonment within the discretion of the court."

Fourth, a direct addition to expense of operation of United States ships, and reduction of earnings, is caused by the changes in the law that force ship owners to give larger quarters to the crews. Every man must have 120 cubic feet and at least 16 square feet deck room for sleeping quarters, and there can be only two berths, one above the other. This is two-thirds more cubic space and one-third more floor space than was formerly required. A certain 10,000-ton ship owned by a New York company carries 39 men in the crew. It must now devote 2,808 cubic feet to crew. It will hereafter have to devote 4,680 cubic feet, an increase of 1,872 cubic feet. This will take 47 tons from the cargo space. In addition, ships with crews of 12 must have a com-

Generated on 2024-07-26 09:53 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

partment for hospital purposes, having one bunk for every 12 men, but not more than six bunks in any case. This will displace nine tons more of cargo. And still more, every ship must have at least one light, clean and properly heated and ventilated washing place with one outfit to every two men of the watch. If there are more than 10 men in the fire and engine room, there must be a separate washroom for them large enough to accommodate one-sixth of them at a time and "have hot and cold water supply and a sufficient number of wash basins, sinks and shower baths."

Some of the additional requirements of the law are already voluntarily provided. The trouble will be that there will be many ships that may come just under the official measurement, necessitating considerable expense for very slight changes.

Fifth, the law adds to the official requirements of seamen's menu by specifying five quarts of water per day, instead of four, and two ounces of butter, instead of one. In the case of the specimen 10,000-ton ship this adds 10 gallons of water and 2½ pounds of butter a day to crew requirements.

Almost any ship owner may be able to figure out at once the cost to him upon specific vessels of the additional room, shower baths and butter, and the diminished earnings by the taking out of cargo space. But what his labor is going to cost him is now the anxious question.

"If the new law is figured out by the supervising inspectors who have met at Washington to make the new regulations under it to mean that able seamen must be United States citizens," said the head of the navigation department of a corporation that operates many ships under the United States flag, "there simply won't be men available for the ships. If three-quarters of the crew must speak English it will be hard enough to get crews, but nobody knows just how many of our seamen are not citizens, even among the Russians, Finns, Norwegians, etc., who can speak the language well enough to pass an official test.

"The law says that all our men must go through tests of their eyesight, hearing, physique, etc. Who can tell how many that will bar out? There isn't any surplus of crew material now.

"The penalties for desertion are taken away as regards the seamen of foreign vessels in our ports, whose masters must pay half wage here, as we must. This seems to be calculated to increase the supply of unattached seamen in our ports, but will it really do so? Isn't its purpose rather to unman the foreign ships so that they will take American seamen?

"The law makes possible an entirely new element of costly insubordination in shipping. It seems to put a premium on desertions, on threats of desertion and strikes. Any 'citizen' can cause a muster of a ship's crew six hours before sailing time and raise questions that will take days and weeks to decide. Every ship owner will have to be prepared to get sailors on a few hours' notice or abandon a sailing. I do not see how the law can fail to increase the cost of hiring crews. The additional costs that we can see with certainty before us are probably the least of the ultimate increases to the expense of running ships under the American flag."

It can be well understood that any analysis of this bill made at present time must be incomplete and perhaps in some respects inaccurate. The actual effects cannot be determined until some time after the bill has become operative and results are known, but the provisions of it are sufficiently clear to make certain that the result will be a decided increase in the expenses of operating tonnage under the United States flag. The intent of the bill evidently is to improve and favor conditions for the seamen.

The originators of the bill have evidently lost sight of the fact that in adding to the cost of operating American tonnage they are killing the "goose that lays the golden egg" by placing further obstacles in the way of an increase in our merchant marine, and making it less desirable to sail under our flag. Conditions were difficult enough under the previous navigation laws, and to add to the difficulties by the present law will not make steamship owning attractive for American investors. Under the emergency bill passed last year permitting the President to suspend for a time some of the operations of the navigation law, quite a large number of steamers were transferred to the American flag, but already some of the owners who made this transfer are regretting their action and contemplating a retransfer to some other flag. Their intention to do so will no doubt be hastened and increased when the new shipping law goes into effect, and it will no doubt be a great deterrent against further transfers to the United States flag. From the point of view of a ship owner the bill was a very unwise one and will work to the disadvantage of both owners and seamen.

Opening of Lake Season

While insurance attached April 15 as usual, no vessels left port on the great lakes except a few that had storage coal aboard or were under charter to load grain during the first ten days of navigation. The Straits of Mackinaw were reported free from ice on April 12, but the ice in the lower St. Mary's river was still firm and no necessity existed for forcing it. Few sales of ore have been made and with the exception of a few cargoes for mixtures, the ore movement during April will be light.

Hull underwriters have issued a form of policy somewhat more favorable to vessel owners than the old one. The preferred rate will be extended to all steel boats, which was not the case last year, and it will moreover cover the entire year instead of merely the sailing season. During 1914 the preferred rate for the sailing season from April 15 midnight to Nov. 30 midnight was 3⅛ per cent. Under the new policy this rate will be charged for the entire year which the insurance agents figure is a reduction of ¼ of 1 per cent from the preferred rate of last year, which was 3⅝ per cent for the full year. Moreover, excess insurance has been definitely fixed for the period of sailing from Nov. 30 midnight to Dec. 12 midnight. These extra charges will be ½ of 1 per cent up to Dec. 5, ¾ of 1 per cent up to Dec. 8, and 1 per cent up to Dec. 12. This arrangement will make it possible for vessel owners to charter ahead as it will enable them to figure their fixed charges. The Great Lakes Protective Association will carry 25 per cent of the total insurance and has fixed the initial rate at 3¼ per cent for the year. This rate is ¼ of 1 per cent lower than that paid last year and ⅛ of 1 per cent lower than the rate fixed by the underwriters for 1915. Cargo insurance, however, on ore and coal for steel vessels has increased from 5 to 8 cents per $100.

The freight rate on coal will be the same as it was last year, but the freight rate on ore is still being held in abeyance.

The Waterbury Co., 80 South street, New York, has just issued a catalogue to the trade with reference to their Marline covered wire rope, known as Fibreclad. Fibreclad wire is a wire rope of standard construction made of either five or six strands of a stated number of wires to the strand, each strand being served with the best grade of tarred Russian Marline. The rope is made in all grades of steel to meet the needs of the user. Catalogue will be sent to anyone interested.

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Storm Doors and Shutters

The Ruling of the Steamboat Inspection Service on the Subject—Cast Iron Flanges on Piping No Longer Allowed

F. B. SMITH, fleet engineer of the Pittsburgh Steamship Co., has made the following report to President Livingstone, of the Lake Carriers' Association as to the result of a visit of the committee of captains and engineers to Washington. This committee consisted of W. E. Lloyd and T. Jackman, of the Mutual Transit Co.; George Lynn and Capt. R. Lyons, of the Great Lakes Steamship Co.; J. W. Greiner, of the Canada Atlantic Line; J. C. Workman, American Ship Building Co.; W. F. Riley, Shenango Steamship Co.; Capt. J. M. Johnston, Cleveland-Cliffs Iron Co.; W. J. Hunt, H. N. Hobart and F. B. Smith, of the Pittsburgh Steamship Co. Phil Broderick, of the Great Lakes Towing Co., and Hugh Wilson, of the Western Transit Co., were also present, though not as members of the committee. Mr. Smith reports:

Doors and Shutters

"The question of doors and shutters was taken up with Supervising Inspectors Westcott and Nelson and an agreement made with them without bringing it before the board. The agreement was to the effect that where doors are in good condition, the only change necessary will be to put a plate of No. 16 gage sheet iron over the outside of the door, fastening it on with wood screws. Where the doors are not in good shape and new doors have to be installed, the board will be willing to accept and pass doors made from 2-inch stock. These doors, however, must not be less than 1¾ inches thick, but as a usual thing, stock doors run from 1¾ to 1⅞ inches. This would save making up special doors. It must be understood that the doors will be this thickness all over, no allowance being made for panels being thinner than the frame of the door.

"In regard to window shutters, it was agreed that wooden shutters of a full ¾-inch thick would pass inspection. This, of course, would take 1-inch lumber dressed down.

"Regarding the vertical check valves that had been ordered taken out by the local inspector at Duluth and other check valves installed in their places, we got a ruling that the check valves that are in at the present time, fill all requirements and it is not necessary to take any of them out to change them, and, further, we can use the same check for future installations This was quite a point to gain for the reason that there are a great many of those checks in use on lake steamers and in the case of the steamers which were ordered to change them last season, I am informed that the cost was about $250 a boat. This high cost was made up by the amount of piping that had to be changed in order to install the horizontal check valves ordered in by the inspectors.

"After the meeting of the Lake Carriers' Association, a rule was brought to our attention that cast iron flanges of tested material would not be allowed on terminals of piping, up to 5 inches in diameter. It seems that this rule was made several years ago, but it had not been understood by ourselves nor the local inspectors anywhere on the lakes and as a consequence a great many of those cast iron flanges were installed and after the matter had been brought to the attention of the inspectors, it left it in such shape that the locals could have ordered us to change all the flanges that are now installed. We got a ruling from the board, however, that all such flanges that were installed at the present time could remain, but in all future installations, cast iron flanges would not be allowed in those places.

More Help in Office

"Regarding the question of more help in the local inspectors' offices, General Uhler and the rest of the board seemed anxious to do all they could to help us out in the matter, and when we asked them to make some arrangements in some way that the inspections should be distributed through the sailing season on the lakes and not have so large a percentage of the inspections take place before the boats go in commission in the spring, General Uhler said that he would look into the matter thoroughly and see what could be done to relieve the situation. There cannot be anything done, however, this spring in regard to getting more help, but they will try their best to help us out and not delay the starting of the boats. In connection with this matter I wish to again call your attention to the importance of the Lake Carriers taking up the question of getting a larger appropriation for the steamboat inspection service so that they can put on more help, for if something is not done, I am afraid that next year they may not put forth as great efforts to help us out in the matter as they will do at the present time.

"In regard to the proposition of shortening the period which young men have to serve in the engine department before being eligible for examination for second assistant engineers' licenses, we explained the situation on this important point fully to the board, and from their conversation I think we will get what we ask for. They seem to favor the idea, and while they did not give us a definite answer at the time, they gave us a good deal of encouragement and I think they will make the change as we requested.

Dead Lights on Spar Deck

"Another question that has been open in the minds of the local inspectors was whether or not it was necessary to put shutters over dead light windows in the cabins. The ruling was made that where these dead lights were above the spar deck, it was not necessary to put on extra shutters, but where the dead lights are in the hull where they are liable to be struck by docks or drift wood, the shutters must be installed.

"During the session, General Uhler asked some of the captains present what their ruling was in regard to ringing the bells and blowing whistles when lying at anchor in thick weather. It seems the rule is almost universal on the lakes to blow five short blasts of the whistle at short intervals as well as ringing the bell according to the rule. The opinion of our captains was that it should be made a part of the law. General Uhler explained that at the present time the ringing of the bell was the only requirement, and that while he did not wish to take the position that they could not blow the whistle at the same time, it might raise a question before some of the judges in cases of accidents happening when the whistles were blown in conjunction with the ringing of the bell. Captain Hunt, of the Pittsburgh Steamship Co., requested the board to take it up and see if they could not have it made a part of the law that the whistle should be blown as well as the bells rung.

"I wish to say in regard to this

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

session with the board that we went there not expecting to get very many favors, as having been there so often, we thought they might think we were trying to be dictatorial, but I am very pleased to say that we were never received as courteously as we were this time, and from beginning to end they seemed to want to impress us with the fact that they not only were willing to have us come, but were glad to have us come and meet with them, as it was in that way they learned of the requirements and needs of the vessel owners. These were all the points we brought up, and I think we will get about everything we asked for."

Auxiliary Lighting Sets

All Passenger Steamers, Lighted by Electricity, Must Carry an Auxiliary Lighting System Located Above the Deep Load Line

THE Steamboat Inspection Service has issued the following circular letter to all supervising and local inspectors.

"Under the provisions of section 4,405 Revised Statutes of the United States, the Board of Supervising Inspectors, Steamboat Inspection Service, at a regular annual meeting held in Washington, D. C., on March 16, 1915, adopted the following resolutions amending the General Rules and Regulations, containing provisions for auxiliary lighting and wireless systems, in pursuance of an act of congress approved Oct. 22, 1914, amending section 4,472 Revised Statutes.

"These amendments to the rules having received the approval of the Secretary of Commerce on March 17, 1915, have now the force of law and must be observed accordingly.

"The resolutions above referred to read as follows:

Carrying Gasoline

"Resolved, That section 16, Rule IX, Ocean and Coastwise, page 116; section 15, Rule XI, Lakes, Bays, and Sounds, page 225, and section 15, Rule XI, Rivers, page 332, General Rules and Regulations, be struck out and the following substituted therefor:

"On and after July 1, 1915, all steamers of the United States, subject to the regulations of this Service, carrying passengers, which steamers are lighted by electricity and whose dynamos are located below the deep-load line, shall have on board an auxiliary lighting system located above the deep-load line sufficient to light the steamer to enable passengers and crew to find their way to the exits, which system shall be ready for use in case of failure of the main lighting system.

"Vessels carrying passengers or freight for hire permitted under the authority of the act of congress approved Oct. 22, 1914, amending section 4,472, Revised Statutes of the United States, to transport and use gasoline or any of the products of petroleum for the operation of engines to supply an auxiliary lighting and wireless system independent of the vessel's main power plant, shall be allowed to carry not to exceed 40 gallons of gasoline or any of the products of petroleum for such purposes when contained in a seamless steel tank, cylindrical in form, not less than one-fourth (0.25) of an inch thick, and of a capacity of at least 10 per cent more than the volume of the contents. The tank shall be tinned on the inside and tested to 300 pounds pressure to insure tightness, and fitted with a vent pipe of ample capacity, with no angles in pipe greater than 45 degrees, opening to the atmosphere at a point not less than 10 feet above the highest house, the vent pipe to end with a U bend with the opening protected by wire gauze. The filling pipe or cap shall be entirely independent of other connections. The tank shall be carried on the highest deck of the steamer and so located that there may be a free circulation of air all around it.

"Steamers engaged in trans-oceanic service or on voyages of more than 10 days' duration in either direction may carry such quantities of gasoline or any of the products of petroleum as may be necessary to supply an auxiliary service already installed, the tanks already installed and the location of same being allowed for this purpose. On steamers where the auxiliaries are maintained by engines using the heavy oils, the oil may be carried in quantities not to exceed 15 tons, when contained in iron or steel tanks of sufficient strength to withstand the action of sea or temperature, and so located as to be properly insulated or ventilated if either is necessary.

Tanks Firmly Fixed

"All tanks shall be firmly and properly secured to prevent being torn away from beds or saddles by heavy weather or excessive list of the ship, and shall be the object of daily inspection by the officers of the ship intrusted with their care.

"There shall be placed within 5 feet of every tank containing gasoline, benzine, or naphtha not less than two fire extinguishers of approved type which have demonstrated a capacity for extinguishing burning gasoline, which fire extinguishers shall be in addition to the fire extinguishers already required."

Local inspectors shall furnish at once a copy of this circular letter to the master of every inspected vessel in their district, and until the 1915 edition of the General Rules and Regulations is ready for distribution.

Geo. Uhler,
Supervising Inspector General.

Emergency Generating Sets for Marine Service

The prime requisite for emergency lighting and wireless service on shipboard is beyond question a reliable source of electric energy, isolated from and independent of the main power plant. The character of the equipment selected for this work is, however, of considerable economic importance. It will determine whether or not the service of the emergency outfit will be practically limited to those rare occasions when its use is imperative, or whether it can also be successfully applied in the ordinary daily power service of the ship, either as an effective auxiliary of the main source of electrical supply or, in certain cases, as the sole generator of electric energy for power, lighting and wireless operation.

Owing to the numerous applications of the internal combustion engine, with resulting improvements in design, performance and reliability, it has been possible to develop compact and highly efficient gasoline engine-driven generating sets especially adapted for marine service, which are relatively light in weight so that they can be safely and easily installed above the deep load line of a ship where they are effectively isolated from the main power units. At the same time, the two plants may, under normal conditions, be electrically interconnected; and the operation of motors, lights and wireless outfit may be secured either through the main or emergency generating sets or both.

There are manifold important advantages in such an arrangement, both from an operating and commercial viewpoint. In a ship already in commission, where the generator capacity of

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

the engine room is only sufficient to meet the ordinary demands for electric current, any excess that may be temporarily needed can be supplied by the emergency set, thereby avoiding the subjection of the main power plant to overloads and their potential dangers. Additions to the original electrical equipment of the ship may be made without augmenting the original power plant by a judicious selection of an emergency generating set of suitable capacity. With the ship in port, it is not necessary to keep part of the boilers and engine room in operation in order to have electric service available.

For new ships of moderate size the emergency generating sets may, in many cases, be made to take the place of the usual engine room electrical equipment. If duplicate generators would ordinarily be installed, one generator could be replaced by the emergency set, thereby lowering the first cost of the power plant and yet retaining all the factors necessary for adequate electric service under both normal and emergency conditions.

In order successfully to meet operating requirements on board a ship, emergency generating sets have been provided with marine fittings throughout. The fuel supply may be located either above or below the engine; while the water circulation system is such that it can utilize either sea water with free discharge, or a closed circulating system with a storage tank. The latter affords better operation, however, due to the heating of the circulating water, which results in a more even cylinder temperature.

For the wireless outfit, the necessary alternating current can be obtained through a small, compact and self-contained motor generator set; and if storage batteries are also provided, a simple arrangement of switches and wiring will serve to interconnect or to isolate, as may be required, the three sources of current supply, the batteries, engine room and emergency generators.

The reliability of these emergency sets is such that their starting is practically instantaneous; and if held simply as reserves, the necessary periodical testing may be done without delay or difficulty and without requiring the service of a skilled operator. The generator capacity selected for any ship will, of course, depend largely on the character of the work required and whether or not the output of the emergency set is to be used for other than wireless service and emergency lighting.

From an engineering standpoint, there is no reason for limiting the service rendered by gasoline engine-driven generating sets designed and built specially for marine service solely to emergencies, as their fuel economy and high thermal efficiency at full load is well maintained at partial loads. Overloads of short duration can, if necessary, be safely carried, although this type of prime mover should not under ordinary conditions be subjected to heavy overloading. If, in addition to the necessary periodical tests, the emergency sets are frequently used in connection with the ordinary electrical supply system of the ship, such use will give added assurance of their dependability in a crisis, an important consideration aside from the economies incidentally obtained.

Marine sets of this type are now available, ranging in capacities from 1 kilowatt to 25 kilowatts or even higher, designed specially for long continued and rigorous duty. The greatest factors of safety are conserved in all parts of both the engine and generator. The cylinders and valves are of such a size that the full rated output of the generator may be maintained without any possibility of overheating either. They operate quietly and can, therefore, be safely located near the wireless room. The amount of attention they require is practically negligible.

Gasoline engine-driven generating sets have attained their present high electrical and mechanical characteristics through successive developments, brought about by years of exhaustive experiment, supplemented by critical observation and analysis of their performance under the most severe and protracted operation. Their use on shipboard involves no problems which have not already been satisfactorily solved, and those installed on a number of ships now in commission have amply demonstrated in service their ability successfully t o withstand the every-day, working pragmatic test.

Efficiency in Repair Work*

With the addition of the repair steamer Robt. J. Close, to the plant of the Superior Shipbuilding Co. might be said is the last word in efficiency in making repair to vessels with the least possible delay and without being necessary for vessels to come to the ship yard.

The Robt. J. Close is constructed entirely of steel, being 86 feet 6 inches long, 28 feet wide and 8 feet deep, with V-bow and square scow stern with screw propelling machinery.

It is equipped with electric generator for operating the following electrically driven machinery and tools:

Air Compressor,
Electric Welder,
Lathe,
Drill Press,
Forges,
Grinding Machine,
Bolt and Pipe Cutter,
Electric Drills.

In addition to electric welder, there is an acetylene gas welding outfit, and full complement of air and hand tools including all tools necessary for boiler repairs of all kinds. A ten-ton derrick is also installed, being indispensable in handling plates and material when performing repairs to a vessel while at any other place than at the ship yard, and is also used for handling rudder, stern and stem forgings, anchors, propeller blades, crank shafts, etc., without loss of time to vessel to come to yard for loading or unloading when shipped via lake.

The forward deck which is 43 feet long and 28 feet wide, gives ample space for handling of material, serves as an excellent work floor, and is used extensively for the erection of staging thereon in making outside shell repairs, caulking of rivets and seams.

When moored along side of a vessel, for some particular job, there are always a number of other repairs the engineer and captain find are in need, and by having the proper equipment right at hand, we pick up a lot of odd jobs that would otherwise be done elsewhere. This is evidenced by the number of repair jobs done the past season, and for the month of September, 140 orders were filled with a total selling price of over $7,500.00.

A complete stock of staybolts, boiler and heater tubes together with other material necessary for prompt repairs to boilers are always kept on board, as well as a stock of standard castings, viz: manhole covers and plates, chock sheaves, pins, hatch castings, stuffing boxes, manhole studs, gaskets, ceiling bolts, hatch wedges, ladders, etc.

With the above equipment, which might be termed a floating repair yard and working in conjunction with our ship yard and shops, repairs of all nature are done quickly and economically, and with the least possible delay to vessels while they are discharging or loading cargo.

As an example of efficiency in making repairs, we submit the following facts in connection with repairs to the steamer Wainwright, which arrived at coal dock with damaged bow, and upon survey showed the following repairs were necessary, which were made:

One sheer strake plate, two top side plates; one bulwark plate; one breast plate and ten brackets cut out, rolled and replaced. Double beading bar on both sides, cut loose. Stem cut 14 feet from top, straightened and new piece welded on, scarphed and replaced.

These repairs were made while the

*Frank A. Miller, assistant superintendent Superior Ship Building Co. in the *Live Wire*.

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

boat was discharging and loading cargo without any loss of time to boat.

The Close being equipped with a first class air plant and acetylene cutting torch, and every convenience for handling of material, made it possible to complete the above repairs in less than four days. Without such an outfit, it would have been necessary for this vessel to come to yard for repairs and would have suffered a loss of three to four days time for making same.

The crew is composed of three men: Captain, engineer and fireman. The captain and engineer are engaged by the month, while the fireman is paid by the hour and is only used as a fireman when the boat is actually moving about the harbor. He is also used on repairs and for getting out stock material, such as cutting staybolts, fire tools, etc. The services of captain and engineer are also used in this connection.

First French Vessel Through Canal

The first French vessel to make use of the Panama canal is the merchant ship Saint Andre, which entered the canal on the morning of Tuesday, March 16, in passage from Tahiti to Glasgow with a cargo of 6,800 tons of ores. The Saint Andre is a steel freight steamship, 398 feet long by 50 feet beam, and was built at St. Nazaire, in 1912, for La Compagnie Navale de L'Oceanie (Maritime Company of Oceania), which has since operated the vessel principally in Pacific trade.

No official recognition was taken of the passage of the vessel, just as none has been taken of the first vessels of other foreign nations making use of the canal, but at points along the way individuals gave indications of their appreciation of the nation which performed so important work in the building of the canal.

The concession to build a canal across the Isthmus was granted to the first French company in May, 1876, by the government of Colombia. On Jan. 10, 1881, ground was broken at the Pacific entrance by Ferdinand de Lesseps, and regular excavation was begun near Empire in January, of the next year. Work in that section has been carried on continually since then, with the exception of five years, in which activities were halted by financial difficulties. The idea of building a sea-level canal was abandoned in 1887, and the less expensive plan of a lake and lock construction adopted, but in February, 1889, the first company went into the hands of a receiver. A second company took charge and began heavy excavation in Culebra Cut in 1894. It continued operations until the American occupation, May 4, 1904.

The line of the proposed French canal was much the same as that of the present canal, and a considerable part of the French work has been of value to the American forces. Of their total excavation of 78,146,960 cubic yards, 29,908,000 cubic yards were useful to the present canal project. Other important features of the French work were their surveys, borings, hydrographic records, the erection of Ancon and Colon hospitals, of Gorgona (Bas Matachin) shops, Paraiso shops, the Mount Hope shops and dry dock, the establishment of residential villages at points all along the line, including Cristobal, Bohio, Tabernilla, San Pablo, Gorgona, Matachin, Bas Obispo, Las Cascadas, Empire, Culebra, Paraiso, and La Boca, and the assembly of a great deal of railroad and excavating equipment, much of which is in service today.

The French spent close to $250,000,000 on the Isthmus and lost about 6,283 lives in their attempts to build the canal. Hundreds of the men who lost their lives in the French service are buried in the cemeteries on the Isthmus, where since have gone to join them hundreds who continued their work under the American flag. The French regime, 1881 to May 4, 1904, and the American, from the latter date to the present, have lost approximately equal numbers of employes by death.

Fog Signals When at Anchor

At a hearing before the board of supervising inspectors of steam vessels in Washington on Feb. 10, pleas were made by Capt. W. J. Hunt, representing the Pittsburgh Steamship Co., Capt. J. M. Johnston, representing the Cleveland-Cliffs Iron Co., and Capt. R. J. Lyons, representing the Great Lakes Steamship Co., in extenuation of the practice of using the steam whistle for giving signals in fog with the ship at anchor.

The board made it clear that it considered this practice a distinct violation of the pilot rules for the great lakes and their connecting and tributary waters, approved January, 1912, and that any officer violating the plain terms of the statutes as expressed in the rules referred to would find no support in any investigation by the board through any local district or on appeal of any disaster coming within the board's cognizance. Inasmuch as it is obligatory upon all licensed officers and owners to report all cases of damage from whatever source involving over $100, any damage may in consequence become the subject of investigation. United States Supreme Court decisions were quoted in support of the board's position and it was impressed upon those present at the hearing that the only signal authorized or which would be recognized by a ship at anchor in fog was the bell.

The question of what constitutes "moderate speed" as required by Rule 14 has long been the subject of dispute among masters and the board was asked for an expression and made it plain that the view very widely held among deck officers as to moderate speed in fog is erroneous; that it could not be interpreted to mean a definite speed in miles per hour applicable to all classes and types of ships, but that the term "moderate speed" must be held to be a term relative to the ordinary full or service speed and also to the matter of control. For instance, a cargo ship of, say, 10,000 tons displacement at, say, 12 miles per hour, could not possibly be said to be under the same control as a tug moving at the same speed and which could be stopped in probably 150 feet, or a sidewheel passenger steamer traveling at, say, 20 miles per hour on an equal displacement and which could be stopped from full speed in a fraction of the time required for the cargo ship.

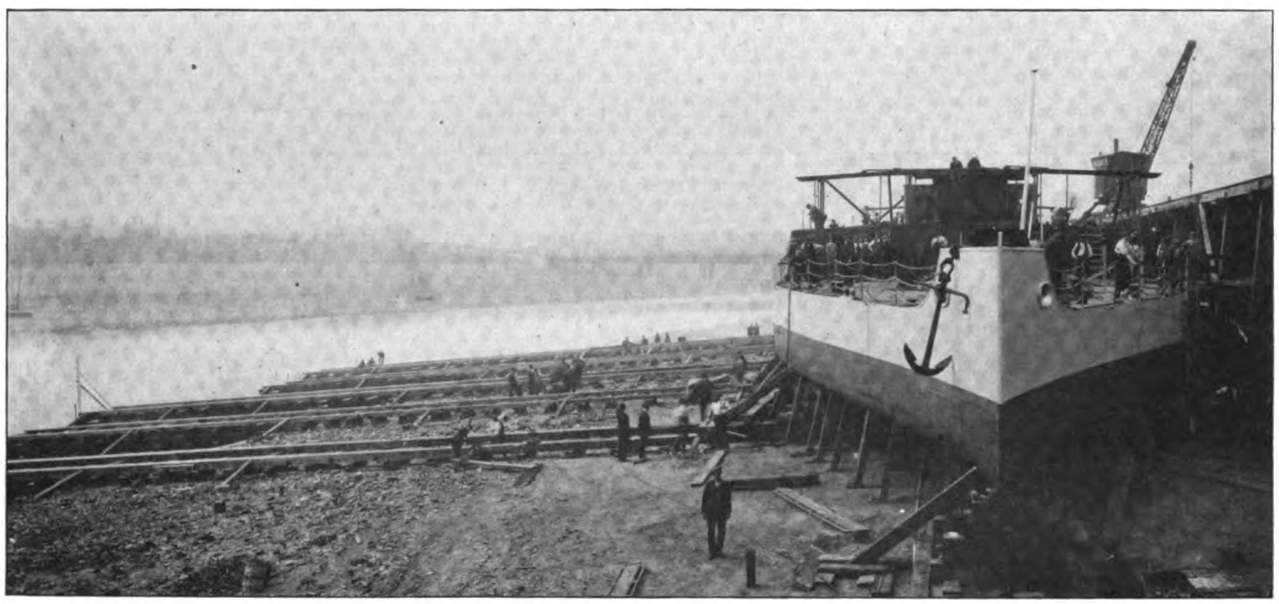
A number of masters have expressed as their opinion that the term "moderate speed" means some fixed term such as five miles per hour. As a matter of fact, it is extremely doubtful whether some ships could be moved at all at so low a speed, particularly beam-engine passenger ships. Such steamers as those of the D. & C. and C. & B. Lines could, beyond a doubt, be brought to rest from a speed equal to the full speed of the cargo ship in their own length, whereas it is doubtful if the latter, if loaded, could be brought to a stop in 1,500 to 2,000 feet.

The annual report of the Atlantic Mutual Insurance Co., 51 Wall street, New York, has during its existence insured property to the value of $27,964,578,109 and has received premiums thereon to the extent of $287,324,890.99. It has paid losses during that period amounting to $143,820,874.99. It has issued certificates of profits to dealers amounting to $90,801,110, of which $83,811,450 have been redeemed, leaving outstanding at the present time $6,989,660. The interest paid on certificates amounted to $23,020,223.85 on Dec. 31 last, the assets of the company amounting to $14,101,674.46.

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Brazilian Monitors

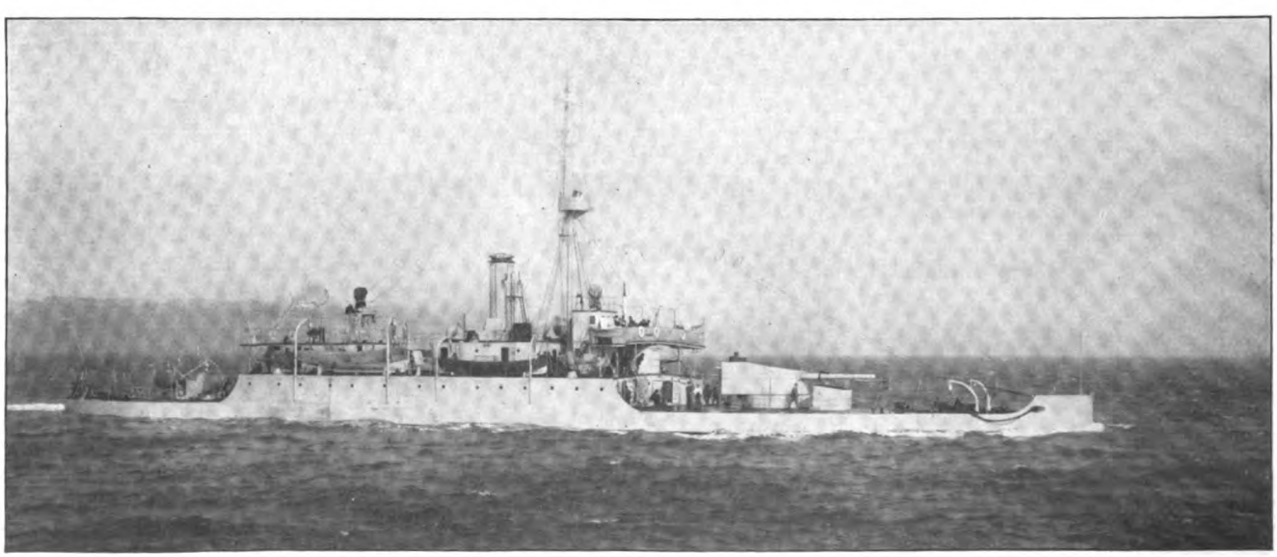
Three Armored Gunboats Built by Great Britain for Brazil—Fine Type of Fighting Craft for the Rivers



LAUNCHING MONITOR GUNBOAT FOR BRAZIL BROADSIDE

THREE armored river monitors were ordered by the Brazilian government from Messrs. Vickers, Ltd., of the Naval Construction Works. Barrow-in-Furness, England. These three armored river monitors have each the following dimensions: Length, 265 feet; breadth, 49 feet; depth, 8 feet 6 inches; mean draught, 4 feet 6 inches; displacement, 1,250 tons. They are primarily intended for river work, and each is fitted with a double bottom extending almost the entire length of the ship, while stowage is provided between the double bottoms for feed water, oil fuel for the boilers, etc. This double bottom construction is continued up the sides of the ship to the upper deck in way of the engine and boiler spaces and magazines. The hull is also separated into a large number of watertight compartments by transverse and longitudinal bulkheads extending up to a complete steel upper deck. These compartments form the various store rooms, magazines, bunkers, auxiliary machinery spaces, etc. The armament, which is of the Vickers type, consists of two quick-firing guns in one armored turret on the upper deck forward with electrical machinery for working them, two 4.7-inch howitzers on the upper deck aft, four 47-m.m. quick-firing guns on the boat deck and six R. C. guns on the boat deck and on the forward and navigating bridges. Fire control arrangements for the guns are provided.

Two searchlight projectors are fitted, one forward and one aft, and these are controlled from a position on the forward navigating bridge. The sides of the vessel amidships for a very considerable part of the length



MONITOR GUNBOAT FOR BRAZILIAN RIVERS

Generated on 2024-07-26 09:54 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

of the hull are armored by heavy plating extending from the upper deck to well below the waterline. Forward and aft of this belt are armored bulkheads, extending the same distance below the waterline as the side armor. The remaining portions of the vessel's sides, including the stern, are protected by thinner armor. The upper deck is of nickel steel, forming protection to the various compartments. In the conning tower, which is heavily armored, are all appliances for working the guns, etc., and for controlling the vessel, and all communication wires, steering rods, etc., are placed within an armored tube. The propelling machinery consists of two sets of vertical inverted direct-acting triple-expansion engines, each set being complete with its own independent and separate surface condenser. The engines are designed to run about 250 revolutions per minute, with a working pressure at the boilers of 250 pounds per square inch and at the engines of 230 pounds per square inch. The diameter of the high-pressure cylinder is 11½ inches, of the intermediate pressure cylinder 18 inches and of the low pressure cylinder 28½ inches, the length of the stroke being 17 inches in each case. The propellers are four-bladed, of bronze, the bosses and blades in each case being cast solid. They are arranged to turn outwards when going ahead and work in a tunnel. Steam is supplied by two water-tube boilers of the Yarrow type, arranged for burning oil fuel in conjunction with coal. The magazines are ventilated and cooled on the thermo-tank system. Ice-making plant is also provided, and for the cold storage of meat and perishable goods there is an insulated compartment fitted with brine grids. A boat deck is built above the upper deck forming a superstructure in which the officers are accommodated. Pantries, lavatories and washplaces are also built within the superstructure. On the boat deck accommodation is provided in steel deck houses for the commander and navigating officer. Messing and sleeping accommodation for the crew, including sick-bay, dispensary, cockpit and operating room, are arranged in the forward part of the vessel below the upper deck.

Sleeping accommodation is also arranged on the upper deck for troops. The complement is 100 officers and men. Special attention has been given to both the natural and artificial ventilation of the vessel to give an abundant supply of fresh air, in view of the extremely warm climate and great humidity of the atmosphere in the district in which the ship serves. The mechanical ventilation is carried out by means of ventilating fans worked by electric motors. All the magazines and store rooms containing inflammable articles are provided with means for flooding. Chemical extinguishers are also installed. The electric power is derived from two sets of electric generators, one of which is driven by steam engines and the other by paraffin motors, the latter being capable of the full duty required when the boilers are not under steam. Steam steering gear for the twin rudders is fitted under the upper deck. A steam capstan is fitted forward, and for mooring operations and assistance in the work of turning the vessel round there is a capstan driven by a paraffin engine placed aft. The mast is fitted up with range-finder platform and is made suitable for taking a wireless telegraph installation. Four boats are carried on the boat deck on chocks and in davits, two of these being motor boats. In addition to these, a dinghy is carried in davits at the after end of the upper deck for general purposes. Two navigating bridges extending the full breadth of the boat deck are fitted, with a commodious chart house of steel on the forward bridge.

These three armored river monitors were designed for a speed of 11½ knots and a radius of action at an economical speed of 4,000 nautical miles, and during the recent official trials we understand that the Javary more than fulfilled the whole of her contract conditions, attaining ¾ knot over the guaranteed contract speed.

Obituary

The whole shipbuilding industry of the United States was profoundly shocked over the sudden death of J. R. Andrews, president of the Hyde Windlass Co., Bath, Me. He was found dead in bed in his apartment in New York City on March 25. Apoplexy was the cause of death. Mr. Andrews was born at Bridgewater, Mass., on Sept. 6, 1861, and was educated at Bridgewater High School and Bridgewater Academy. In 1879 he obtained employment as an apprentice in the machine shop of the Hyde foundry at Bath, rapidly advancing to the position of foreman, and a few years later was made vice president and general manager of the Hyde Windlass Co. When this company was separated from the United States Ship Building Co. in 1905 he became president. He worked untiringly to advance the interests of American shipping and no figure was better known in shipping circles. He was recognized as an authority on rugs and pictures, of which he had a valuable collection. In addition to being president of the Hyde Windlass Co. he was also president of the First National Bank of Bath. He was a member of the American Society of Mechanical Engineers and the Society of Naval Architects and Marine Engineers. The secret orders that he belonged to were the Masons and the Knights of Pythias. He was also a member of the Lotus, Engineers', Lawyers and New York Yacht clubs.

John Englis, for years the central figure in the widely known shipbuilding firm of John Englis & Son, at Greenpoint, died at his home in Brooklyn, Thursday, at the age of 82. Some of the steamers built by John Englis & Son are the Daniel Drew, Dean Richmond, Old Colony, Saratoga, City of Troy, C. H. Northam, Columbia, Grand Republic, Tremont, Forest City, Star of the East, Katahdin, Cambridge, Falmouth and John Brooks. A number of the famous old time coasting steamers were also the product of the John Englis yards, including the City of Mexico, City of Nerida, City of Havana, City of New York, City of Atlanta and City of Columbia. The last notable steamboat built in its entirety at the Englis yards was the Adirondack.

Mr. Englis survived his wife, who was Jeanett A. Carrick, daughter of a Lake Erie shipbuilder, only five months. They celebrated the 60th anniversary of their wedding on June 21 last, at their country home at Englewood, N. J.

Besides the son, Charles M. Englis, Mr. Englis is survived by four daughters, Mrs. Charles B. Sayre, Mrs. Joseph Melcher, Mrs. Irving Glover and Mrs. John H. Emanuel Jr.; ten grandchildren and three great-grandchildren.

Frank T. Bullen, author and lecturer, died Feb. 26 at Funchal, Madeira. He was born at Paddington, April 5, 1857, and left school when he was nine years old to become an errand boy. When 12 years old he went to sea as a cabin boy. He followed a seafaring life for 24 years, serving in various capacities up to and including the position of mate. He went to all parts of the world, and it was during those years that he acquired the large store of information which he later worked into his sea stories. Among his best known books are "The Cruise of the 'Cachalot'," "Idylls of the Sea," "The Log of a Sea Waif," "The Men of the Merchant Service," "With Christ at Sea," "A Sack of Shakings," "The Apostle of the Southeast," "Deep Sea Plunderings," "A Whaleman's Wife," "The Seed of the Righteous" and "Back to Sunny Seas."

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

New African Liner

A Fine Steamer Built for Trade With the West Coast of Africa—Description of Her Quarters

THIS fine large twin screw passenger and mail steamer which has been built by Harland & Wolff, Ltd., to the order of the African Steam Ship Co., London (Messrs. Elder, Dempster & Co., Ltd., managers), left Belfast on Thursday, March 4, for Liverpool from which port she will shortly sail for the West coast of Africa. The new vessel is 441 feet long overall and 57 feet beam, with a gross tonnage of about 8,000. She has been built on the latest principle of watertight construction, having six watertight bulkheads dividing the structure into seven watertight compartments, and the double bottom built on the cellular principle extends right fore and aft, specially strengthened in way of the engine room. There are five steel decks and in general design and construction the Apapa represents the highest attainments in British shipbuilding for a first class vessel of her size and type. In addition to having large cargo capacity, the Apapa is fitted up with sumptuous accommodation for a large number of first and second class passengers, the permanent first-class rooms being single and two-berth rooms, the second two and four-berth and the third class also two and four-berth rooms. There is in all accommodation for about 400 passengers.

Passenger Quarters

The first class staterooms, situated in large deckhouse on the bridge deck, are nearly all single berth rooms fitted with cot bedsteads; and those on the awning deck and main deck are two berth rooms arranged on the tandem principle, giving natural light and ventilation to all rooms and eliminating what are known as inner rooms. The upholstery is cretonne, the furniture mahogany, and carpeted floor. The first class suite staterooms on the awning deck have toilet and lavatory attached. One of the rooms is panelled and framed in oak, with oak furniture; the other finished white, with oak furniture and floor covered with Brussels carpet.

The first class public rooms are arranged and decorated in the most approved style. The dining saloon on the main deck extends the full breadth of the vessel and will seat 150 persons. The floor is covered with linoleum tiles; the upholstery is green leather. The room is furnished with small rectangular tables in the restaurant style, and handsome sideboards at forward and after ends. The sidelights are of large diameter arranged in pairs, and the saloon is panelled and framed in white enriched Adams style.

The first class lounge, on the bridge deck forward, is panelled and framed in sycamore, relieved with carving. The upholstery velvet, and the room has large teak framed windows. There are two bookcases at the after end, and handsome sycamore piano at forward end. The furniture is of wickerwork and consists of lounge easy chairs, settees, writing tables and chairs and small square tables; the floor is covered with linoleum tiles.

First Class Smokeroom

The first class smokeroom is situated aft on the boat deck; the panelling and framing is in oak, handsomely carved and relieved with inlays: pictures in panels. The furniture is of oak, the upholstery dark green morocco. There is a large decorative skylight overhead, and large teak framed windows opening in pairs. The furniture consists of small card tables, settees, writing tables and tub chairs and two sideboards at forward end. The floor is covered with linoleum tiles. At the after end of the smokeroom an open verandah is arranged with small teakwood tables and chairs, and bar and gentleman's lavatory adjoining.

The first class companionway, stairway and entrance are panelled in oak, and there is a large decorative dome over the main entrance.

The promenading spaces are all that could be desired, and it is anticipated that the arrangements made for the comfort and enjoyment of passengers will be very highly appreciated.

The second class accommodation is also well arranged and of a high class character. The staterooms, situated on the main deck, as already mentioned, are arranged in two and four berth rooms on the tandem principle. They are upholstered in figured repp, and have mahogany furniture.

The second class saloon, like that of the first class extends the full breadth of the vessel on the main deck, and will seat 108 persons. It is panelled and framed in baywood, finished flat white, with dado and furniture of mahogany. There is a handsome upright piano, with sideboard at each side, at the forward end of the room, and the large sidelights are arranged in the most effective manner.

The second class smokeroom, on the bridge deck aft, is panelled and framed in oak, with oak furniture; it has large teak framed windows, and the furniture consists of card tables arranged in bays, revolving chairs and writing tables. A bar adjoins the smokeroom.

The third class accommodation consists of the staterooms on the main deck aft. Dining saloon on the same deck, and the general room at the after end of the awning deck. Both these rooms are finished white and are very comfortable compartments.

There is a gymnasium on the boat deck, fitted up with a large number of electrically driven apparatti, a dark room arranged in the after first class entrance on the awning deck, a barber's shop, and, of coursee, the usual purser's office, doctor's room, etc. The ship's refrigerated chambers and dry storerooms, on the lower deck aft, are of ample capacity. The appliances for working ship and cargo are of the latest type, and the vessel, in addition to having a complete installation of electric light, is fitted with wireless telegraphy apparatus. Wash house and ironing room with electric irons is fitted at after end of poop deck.

The lifeboats are manipulated by patent davits, and are of sufficient capacity to accommodate all persons on board.

Propelling Machinery

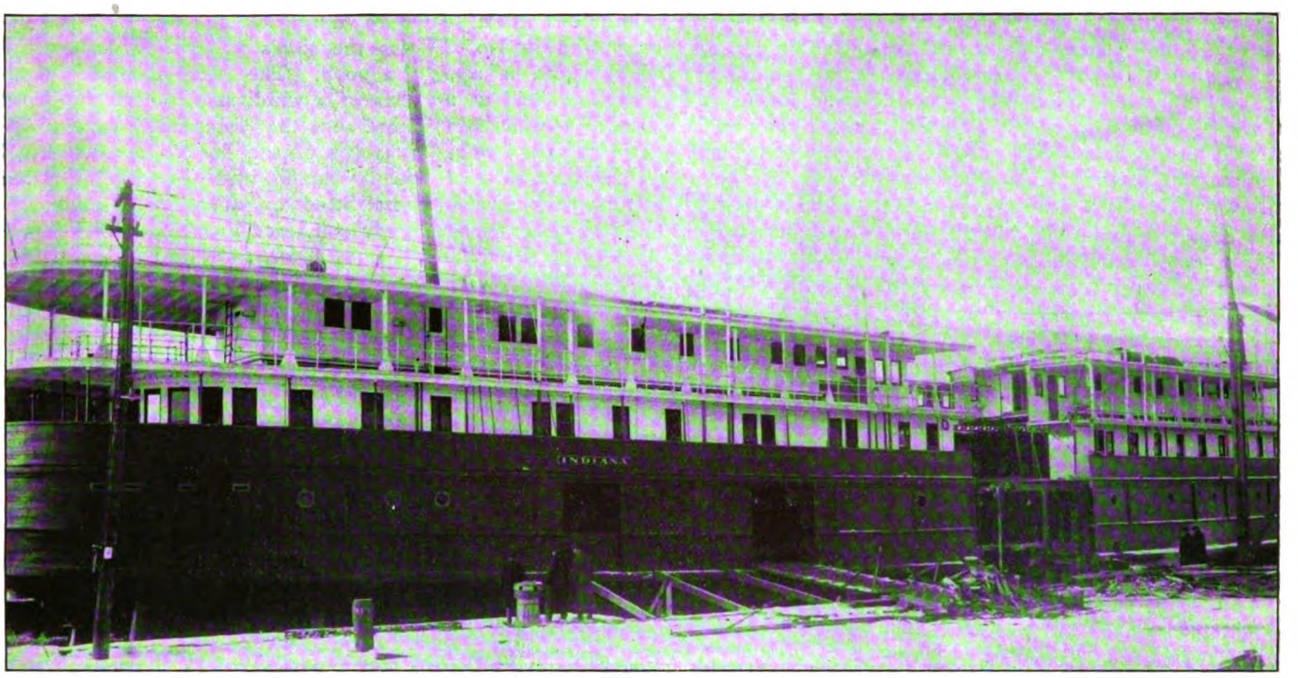
There are large spaces on lower deck forward fitted up for the carriage of parcels.

The propelling machinery consists of two sets of four cylinder quadruple expansion balanced reciprocating engines, also constructed by Harland & Wolff, Ltd.

The vessel has been built under the survey of the Board of Trade for Passenger Certificate.

During construction the vessel has been under the superintendence of Captain W. P. Thompson, marine superintendent, and J. B. Wilkie, superintendent engineer.

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



THE STEAMER INDIANA PULLED APART IN THE DRY DOCK OF THE MANITOWOC SHIP BUILDING & DRY DOCK CO.

Steamer Indiana Rebuilt

The Goodrich Transit Co.'s steamer Indiana had an entire rebuild during the past winter, the work being done by the Manitowoc Ship Building & Dry Dock Co. The Indiana, which was docked on Dec. 21, 1914, was pulled apart on Jan. 9, 1915. The forward end of the boat was wedged up on siding ways and moved 22 feet, stops on the standing ways limiting the travel to the distance wanted.

After pulling apart all the inner ceiling and outside planking was removed for 20 feet each side of the cut so that there would be a proper shift of scarphs. All of the old frames and planking were gone over and replaced by new timber where necessary. A new steel chord extending 30 inches under the main deck shelf piece and 36 inches in depth along the inner ceiling extends 90 feet forward and aft giving a good connection on each side of the new part. Five new steel water-tight bulkheads were placed in the hold. These with the original bulkheads subdivide the vessel to more than satisfy the requirements.

On the main deck the cargo space is divided by a steel fire bulkhead. There is also a steel fire bulkhead across the ship at the after end of the cargo space. New steel boiler and engine trunks are installed from main deck to 3 feet above top deck. The firemen's and coal passers' quarters were moved from the lower hold forward to the main deck, port side, abreast of the trunks, where larger quarters with wash rooms are provided. The starboard side abreast the trunks has been given up to a baggage room. Where these trunks pass through the cabin they are insulated on the inside and not ceiled on the outside as is customary. A complete sprinkling system covers all cargo spaces, crews' rooms, store rooms, linen rooms, toilet rooms and all inside halls and rooms. A new turbine driven centrifugal pump has also been put in to supply the sprinkler system. The aim has been to eliminate the fire danger as much as possible.

The increased length of the Indiana has increased the number of state rooms from 88 to 115 or 31 per cent. To take care of the increased number of passengers, four 28 foot life boats were installed with a combined capacity for 200 persons. These boats are handled by mechanical davits.

Two new scotch marine boilers 12 feet 6 inches in diameter by 11 feet 6 inches long, 150 pounds pressure were installed. Each boiler has two 44-inch furnaces and is equipped with the Howden system of heated air draft. A new high pressure cylinder proportioned to suit the increased boiler pressure has been installed. The attached air pump has been replaced by an independent Deane vertical single air pump. A new propeller has been furnished and with more power and less draft the Indiana is expected to be faster than ever.

One dynamo has been brought on deck to suit new requirements. The wireless room was moved from the main cabin to a separate house on the top deck.

With a new steering gear and dynamo, and a complete overhaul of all auxiliaries, etc., the Indiana is practically a new boat.

Oil Tank Steamer Gulfcoast

The oil tank steamer Gulfcoast, contracted for in September, 1914, was launched at the yard of the New York Shipbuilding Co., in Camden. The sponsor was Mrs. Elizabeth Louise Connolly. The vessel is being constructed for the Gulf Refining Co., of Pittsburgh, making the fourth of this type of ship to be built for this company by the Camden concern. Her principal dimensions are, 406-foot 6-inch length over all, 51-foot beam, and 30-foot 3-inch depth. The Gulfcoast is of the two-deck type, with raised poop and quarter deck, while the expansion trunk is carried above the upper deck. The capacity fully laden is 2,285,000 gallons of oil in bulk, contained in 22 separate oil-tight compartments, in addition to which there is also a large cargo hold, and smaller compartments, fitted with all the necessary cargo booms, winches and handling gear, in which barreled oil or general cargo can be transported. The propelling machinery, located aft, consists of triple-expansion engines, having cylinders 27 inches, 45 inches and 75 inches by 48-inch stroke, developing 2,700 maximum indicated horsepower, and designed for an average service speed of 11½ knots. Steam at 190 pounds is supplied by three single-ended Scotch boilers, 14-foot 8-inch diameter and 11 feet long. The boilers are fitted

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

to burn coal or oil and the oil burners are of the mechanical atomizing type. In addition to the usual auxiliaries, the vessel is fitted with a two-ton ice machine connected with ample cold storage capacity, providing an abundant supply of fresh stores at all times.

The engine room is also fitted with an up-to-date machine shop, and a complete outfit of tools necessary for making ordinary repairs. The steering engine is fitted directly on the rudder stock and is worked from the bridge and from aft by telemotor gear; while for additional safety there is also an independent hand gear, which can be used in times of emergency. For towing purposes a powerful automatic machine has been placed on the stern of the ship. The bunkers for the oil fuel used to drive the ship have a capacity of 176,000 gallons and are placed at both ends of the vessel, so that cargo or fuel may be carried. There are seven cargo pumps, each capable of discharging cargo at the same time, through an independent line. The ship's officers and wireless operator are berthed in comfortable quarters located in a house amidships, raised above the deck, and communicating with the after part of the vessel, where the dining saloon is situated, by means of a substantial fore-and-aft bridge. The engineers, petty officers, seamen and wipers are berthed under the raised quarter deck in the after section, which also accommodates the saloon, mess rooms, galley, stewards' storeroom, etc. The electric generating plant consists of two 10-kilowatt G. E. marine direct connected sets for 110 volts, driven by vertical engines located on the main deck in the engine space.

Lumber Steamer William O'Brien

As announced in last month's *Review,* the New York Shipbuilding Co. recently launched at their works in Camden, N. J., a steel single-screw lumber steamer which they are building to the order of the Carpenter O'Brien Co. Particulars of the vessel are as follows: Length B. P., 361 feet 9 inches; beam, molded, 51 feet; depth, molded, 27 feet; draught, loaded, 21 feet 6 inches; gross tonnage, 5,535; speed at sea, loaded, 11 knots.

The vessel has been built for the package lumber trade between New York and Jacksonville, Fla., and is from plans and specifications prepared for the owners by Edward S. Hough, naval architect and marine engineer, of San Francisco, Cal.

The vessel has a single steel deck with poop and combined shelter deck and forecastle. A double bottom is fitted under machinery and in No. 2 cargo hold only and provision is also made for using No. 2 cargo hold as a deep water ballast tank. A watertight center line bulkhead runs the entire length of the cargo holds, from keel to main deck. The fore peak is also fitted for ballast and the after peak for fresh water. Extra large twin hatchways are fitted to each cargo hold and the vessel is specially designed for carrying package lumber of standard unit dimensions. Provision is also made for carrying a deck cargo in the well separating the poop and shelter deck. The terminals between which the vessel trades being specially equipped with cargo handling appliances suitable for loading and unloading this type of vessel, the vessel herself has a minimum of cargo handling gear; a portable mast with two booms and steam hoists, being fitted at the forward hatch only. A large cross bunker for the carriage of oil fuel is provided at the forward end of the boiler space. The accommodations consist of an upper deck—house aft for the captain, with stateroom, office and bath, and small house for containing pilot room superposed. Deckhouse on poop at sides and after end of engine casing for accommodation of officers, engineers, wireless operators and two spare rooms, with bath rooms, etc. The oilers, seamen, firemen, steward, cooks and waiters, with toilets, etc., are berthed in poop at sides abreast engine casing. A large dining room for officers and also the ship's galley is also fitted in the poop. The deck machinery consists of a windlass with warping ends fitted on the forecastle, two steam capstans of the dock type also fitted on forecastle and two of the same type fitted on aft end of poop. A Hyde combined hand and steam steering engine is fitted in the poop aft and is geared to a quadrant on rudder head, controlled from steering station on top of poop house through rods to hand wheel and also from pilot house by telemotor. The propelling machinery is fitted in the stern and consists of one triple expansion inverted reciprocating engine of about 2,200 indicated horsepower, and three single-ended Scotch boilers having a working pressure of 180 pounds and fitted for burning oil fuel.

LAUNCHING THE GULF COAST AT THE NEW YORK SHIP BUILDING CO.'S YARD

Why the Diesel Engine Has Not Come to the Great Lakes

By James C. Workman
Chief Engineer

At the present time there are only two Diesel engined ships of any size on the Great Lakes, the Calgary and Fordonian. The first ship to invade our waters was the Toiler; she was rather unfortunate in being under-powered and not capable of stemming the current in the St. Lawrence, and from the writer's experience on this propeller, after her break-

James C. Workman, chief engineer of the American Ship Building Co. in the *Live Wire.*

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

down at Montreal, it was evident that the enginer's department were not sufficiently instructed in the operation of the engine. The Diesel installation on this steamer was later removed and replaced with steam engine equipment. This boat therefore might be said to have proven a failure with the Diesel installation.

The Calgary is an installation of much the same type as the Toiler, only some of the unfortunate features of the former have been corrected, the most of importance being an increase of power. Even with the improvements made, this vessel has not proven entirely satisfactory.

The Fordonian is far superior to either of the other two boats and is, as far as the mechanical efficiency of her engines is concerned, doing good work, so her owners have informed me, yet at the same time they say they do not want another Diesel outfit.

What then can be the reason for the slow progress of the Diesel engine on the Great Lakes? It certainly is not because the lake vessel owners are not progressive; they have shown themselves to be alert to every new advance in the engineering program; they quickly abandoned the high pressure engine when the compound condensing engine came into prominence, and as soon discarded this for the triple and quadruple engines; Watertube boilers at high pressure, with superheater steam. Mechanical stokers were tried out, and the steamers on the Great Lakes were among the first, if not the first to install the system of Ellis & Eaves induced draught in this country. The lake vessel operator has given almost every device that has offered him any economy a fair trial, and the modern freighter under the standards that prevail in this country (which are concededly higher than bulk freighters operated by foreign countries on the seas) is operated almost as economically on the Great Lakes as in any other waters in the world.

The Diesel engine has been a good deal of a disappointment in that it has not accomplished the economy of operations that has been claimed for it; the engineering staffs are increased rather than cut down, and the up-keep of these installations is a big item. The successful operation requires trained experts who must exercise constant vigilance, and at best, considerable overhauling must be done after every voyage. While the consumption of fuel shows very good economy under good conditions running from 0.42 to 0.5 pound of oil per brake horsepower, the consumption of lubricating oils is very large. It is true the Diesel installation, requires only enough boiler capacity for the auxiliary machinery and heating, yet the machinery on a large installation (from 2,000 brake horsepower up) requires about as much room as the engine and boiler room space of a steamer. The writer was aboard the Christian X on her arrival at Philadelphia, and found conditions as described above. She has two propelling units 1,250 brake horsepower each.

The high cost of the Diesel installation, which is almost double the steam engine, the difficulty and expense of upkeep, the very cheap coal market of the Great Lakes region, the lack of suitable oil stations and the fluctuating price of oils (it being impossible to make long term contracts on satisfactory prices) are in my opinion the reasons why the Diesel engine has not proven a success on the Great Lakes.

There are many attractive features in a Diesel engined ship for deep sea service that of course do not obtain here. One of the most prominent is convenience in fueling; another, the large radius of operation under one fueling, enabling a vessel to make a return trip without additional fueling up. This of course is a great advantage in countries where coal is scarce and the cost is high, and where facilities for fueling are very primitive.

SUMMARY OF NAVAL CONSTRUCTION.

BATTLESHIPS.

No.	Name of vessel.	Contractor.	Per cent of completion. Mar. 1, 1915. Total.	Mar. 1, 1915. Per cent on ship.	Feb. 1, 1915. Total.	Feb. 1, 1915. Per cent on ship.
36	Nevada	Fore River Ship Building Co.	87.5	85.3	84.6	81.0
37	Oklahoma	New York Ship Building Co.	89.2	89.1	87.2	86.5
38	Pennsylvania	Newport News Ship Building Co.	70.8	64.3	67.7	61.2
39	Arizona	New York Navy Yard.	53.0	47.2	48.1	43.6
40	California	New York Navy Yard.	0.0	0.0	0.0	0.0
41	Mississippi	Newport News Ship Building Co.	7.8	....	6.0	....
42	Idaho	New York Ship Building Co.	15.4	11.2	9.9	....

DESTROYERS.

45	Downes	New York Ship Building Co.	*		99.2	99.2
51	O'Brien	Wm. Cramp & Sons.	94.5	94.5	93.3	93.2
52	Nicholson	Wm. Cramp & Sons.	92.5	92.4	90.2	90.0
53	Winslow	Wm. Cramp & Sons.	89.4	88.1	87.0	85.5
55	Cushing	Fore River Ship Building Co.	86.4	85.6	84.0	82.5
56	Ericsson	New York Ship Building Co.	94.9	94.9	92.8	92.8
57	Tucker	Fore River Ship Building Corpn.	39.4	33.5	33.2	27.0
58	Conyngham	Wm. Cramp & Sons.	60.0	57.7	54.3	52.1
59	Porter	Wm. Cramp & Sons.	56.0	53.1	50.8	48.2
60	Wadsworth	Bath Iron Works.	81.9	81.5	78.6	78.0
61	Jacob Jones	New York Ship Building Co.	60.3	59.6	52.2	51.4
62	Wainright	New York Ship Building Co.	57.3	56.6	51.7	50.9
63	.....	Fore River Ship Building Corpn.	8.7	....	6.4	....
64	.....	Fore River Ship Building Corpn.	8.7	....	6.4	....
65	.....	Bath Iron Works.	2.0	0.0	0.0	0.0
66	.....	Bath Iron Works.	2.0	0.0	0.0	0.0
67	.....	Wm. Cramp & Sons.	0.0	0.0	0.0	0.0
68	.....	Mare Island Navy Yard.	0.0	0.0	0.0	0.0

DESTROYER TENDERS.

2	Melville	New York Ship Building Co.	79.5	78.8	78.3	77.3

SUBMARINE TENDERS

2	Bushnell	Seattle Construction & Dry Dock Co.	85.7	80.6	83.3	78.0

FUEL SHIPS.

13	Kanawha	Mare Island Navy Yard.	97.6	97.3	93.9	93.3
14	Maumee	Mare Island Navy Yard.	76.9	76.4	73.9	73.4

MISCELLANEOUS.

	Supply Ship No. 1.	Boston Navy Yard.	16.0	2.6	15.8	2.3
	Transport No. 1.	Philadelphia Navy Yard.	7.4	0.0	3.4	0.0

PANAMA CANAL COLLIERS

	Ulysses	Maryland Steel Co.	94.0	90.0	87.2	81.5
	Achilles	Maryland Steel Co.	85.0	80.0	77.1	72.9

SUBMARINES.

27	G-2 (1)	Lake Tow Boat Co. (Bridgeport).	89.7	89.7	89.7	89.7
31	G-3 (1)	Lake Tow Boat Co. (Bridgeport).	86.7	86.3	86.7	86.3
40	L-1	Electric Boat Co. (Quincy).	91.1	90.7	89.6	88.6
41	L-2	Electric Boat Co. (Quincy).	88.8	88.2	84.6	83.1
42	L-3	Electric Boat Co. (Quincy).	81.7	79.3	75.5	72.6
43	L-4	Electric Boat Co. (Quincy).	82.5	79.6	76.0	72.7
44	L-5	Lake Tow Boat Co. (Bridgeport).	61.7	56.4	58.2	54.0
45	L-6	Lake T. B. Co. (Long Beach, Cal.).	54.1	48.6	52.7	47.7
46	L-7	Lake T. B. Co. (Long Beach, Cal.).	53.0	47.2	51.6	46.5
47	M-1	Electric Boat Co. (Quincy).	65.9	60.1	63.4	57.4
48	L-8	Portsmouth, N. H., Navy Yard.	10.4	8.7	3.0	0.0
49	L-9	Electric Boat Co. (Quincy).	52.5	46.4	50.0	41.0
50	L-10	Electric Boat Co. (Quincy).	53.6	42.6	45.6	35.7
51	L-11	Electric Boat Co. (Quincy).	41.5	31.1	33.2	23.2
52	.....	Electric Boat Co. (Quincy).	0.0	0.0	0.0	0.0
53	N-1	Electric Boat Co. (Seattle).	0.0	0.0	0.0	0.0
54	N-2	Electric Boat Co. (Seattle).	0.0	0.0	0.0	0.0
55	N-3	Electric Boat Co. (Seattle).	0.0	0.0	0.0	0.0
56	N-4	Lake Tow Boat Co. (Bridgeport).	0.0	0.0	0.0	0.0
57	N-5	Lake Tow Boat Co. (Bridgeport).	0.0	0.0	0.0	0.0
58	N-6	Lake Tow Boat Co. (Bridgeport).	0.0	0.0	0.0	0.0
59	N-7	Lake Tow Boat Co. (Bridgeport).	0.0	0.0	0.0	0.0

(1) Contracts forfeited vessels being completed New York yard.
*Delivered Feb. 11, 1915.

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE MARINE REVIEW

DEVOTED TO MARINE ENGINEERING, SHIP BUILDING AND ALLIED INDUSTRIES

Published Monthly by

The Penton Publishing Company

Penton Building, Cleveland.

CHICAGO	1521-23 Lytton Bldg.
CINCINNATI	312 Johnston Bldg.
NEW YORK	507 West Street Bldg.
PITTSBURGH	2148-49 Oliver Bldg.
WASHINGTON, D. C.	206 Corcoran Bldg.
BIRMINGHAM, ENG.	Prince's Chambers

Subscription, $2 delivered free anywhere in the world.
Single copies, 20 cents. Back numbers over three months, 50 cents.

Change of advertising copy must reach this office on or before the first of each month.

The Cleveland News Co. will supply the trade with THE MARINE REVIEW through the regular channels of the American News Co.

European Agents, The International News Co., Breams building, Chancery Lane, London, E. C., England.

Entered at the Post Office at Cleveland, Ohio, as Second Class Matter.

(Copyright 1914, by Penton Publishing Company)

May, 1915

Seaman's Bill Effective Nov. 4

In five closely typewritten pages the attorney general reaches the conclusion that the seaman's bill does not become effective until Nov. 4, next. The attorney general gave the subject a great deal of consideration, apparently having examined everything bearing on the subject in court decisions over a long period of years, and after reviewing them he cuts the Gordian knot as follows:

"In this difficulty of conflicting claims I know of no other way of solving it than by applying the well settled rule of construction in the case of two repugnant provisions of the same act which is that the last provision shall prevail as speaking the latest and final intent of the law makers."

Steamship owners are, therefore, relieved for the time being from the provisions of this totally unnecessary piece of legislation. It is quite a commentary on congress that it debates a measure for a couple of years and then passes it in such haste that nobody knows what it means. The most sensible thing that it could do when it meets again would be to repeal the act, because some of its provisions will be found in practice to be unworkable.

The Rt. Hon. Sir Joseph Porter, K. C. B.

The North American Review for April contains an article on the secretary of the navy, the context of which is admirably expressed in the words of Macaulay: "We could make shift to live under a debauchee or tyrant but to be ruled by a busy-body is more than human nature can bear." The article is of the most scathing character and the whole situation now confronting the navy is handled without gloves.

The demoralization caused in the service by the leveling tendencies of the secretary have received world-wide comment. To the real purposes of the navy Secretary Daniels is hopelessly blind—and that is battle efficiency. The United States navy has cost this country half a billion dollars more than that of Germany, to which it is vastly inferior. There are evidences everywhere, as has been repeatedly pointed out in these columns, of gross extravagances and utter wastefulness. The way in which money has been spent on useless navy yards is absolutely criminal.

One of the first things that Daniels did was to reopen the yards at New Orleans and Pensacola. They serve no practical purposes whatever except to give jobs to political adherents, but as *The North American Review* points out, this country is rich enough apparently to withstand wastefulness, but recent events have brought very pertinently to public attention the question of efficiency and preparedness. Upon these two points there is no division of opinion. All naval officers are a unit in declaring that the navy is in a state of woeful unpreparedness and that it would require five years of methodical preparation to bring it up to the standard of efficiency of one of the European nations.

What more striking indictment could there be than this from Rear Admiral Austin M. Knight, president of the Naval War College: "The thing that is most radically wrong is the fact that the navy department takes no account of the relation of the navy to war. War is the one thing for which no arrangement is made."

The North American Review finds many points of similarity between Josephus Daniels and the Rt. Hon. Sir Joseph Porter, K. C. B., who it will be remembered achieved his most enviable rank by polishing the handle of the big front door.

Power in Life Boats

The following enactment of congress will take effect on July 1:

"On and after July 1, 1915, all ocean steam vessels over 2,500 gross tons, carrying passengers and whose course carries them 200 miles or more off short, shall be required to be equipped with not less than one motor-propelled life boat as part of their life boat equipment: Provided, however, that any vessel under the jurisdiction of this service may be allowed to carry one motor propelled life boat as a part of the life boat equipment required by such steamer except that on steamers carrying more than six life boats under davits two of such life boats may be equipped with motors."

This legislation may be regarded as an entering wedge. Unquestionably all passenger boats will eventually be required to equip one or more of their life boats with power owing to the additional security which is afforded in case of accident.

Generated on 2024-07-26 09:55 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Ships I Have Known*

In my experience of a good many years in connection with shipbuilding on the ocean and lakes, I have had the opportunity of helping scheme out and supervise in a general way the construction of several special types of vessels for both freight and passenger service, the construction of which proved very interesting.

In this connection I have in mind the steamer Calcite, built by this company for the Calcite Transportation Co. This vessel is of the 8,000-ton capacity class, and was designed especially to carry limestone and coal cargoes, but is equally fit to carry cargoes of iron ore or grain.

The vessel is known as a hopper construction, self-unloading type, having two steel pan conveyors under hoppers, one on each side, extending the whole length of cargo hold. Cargo is distributed to these conveyors through hopper gates, approximately thirty on each side. Gates are operated by hand wheel and chain or cable, and distribution of cargo is controlled by the operator adjusting the gates, so that a full load may be evenly distributed to the lower conveyor. They in turn empty into inclined center conveyor located at forward end of vessel, and having a capacity equal to the two lower conveyors. Center conveyor in turn discharges to troughing boom belt. The boom having a swing radius at right angles to pivot, port and starboard, with the top lifting gear which raises the boom from the level to the angle of degree that stone or coal may safely be carried on. This unloading equipment enables vessel to discharge a cargo on docks which are not fitted with unloading devices. Therefore her range of operation is much greater than the ordinary type of freighter. The capacity of the unloading equipment when first installed was 900 tons of limestone or similar material, but after the first season's operations we have made many improvements on the unloading apparatus, and at present while vessel is in operation the capacity of unloading apparatus is approximately 1,200 tons per hour, cargo discharged on dock or in cars. Range of bottom is such that cargo of limestone or coal can be delivered on dock approximately 70 feet from the edge of dock, a pile 40 feet high.

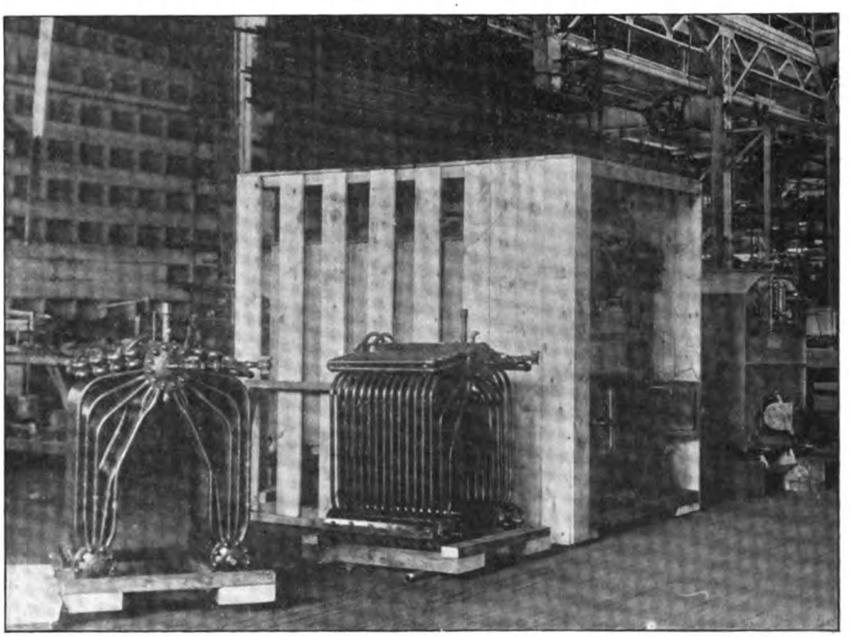
This steamer has proven very successful, as reports from manager of the steamer shows that during the season 1914 vessel was operated 197 days, having to lay up on Oct. 30, owing to lack of business.

Total cargoes carried		46
		Net Tons
Total cargoes coal	8	43,999.85
Total cargoes limestone	38	303,018.64
		347,018.49
Hours navigating		3,424:04
Hours in port		1,235:56
Total hours in commission		4,659:60
Total hours in conveyor operated		394:10
Mileage		39,430

Although the cargoes carried in this vessel are much higher above the base line than on the ordinary bulk freight vessel, her stability and seaworthiness are remarkably good, as reports from manager and master show that vessel without suffering any injury or inconvenience to speak of, passed through the big storms on the lakes which worked such havoc with shipping.

This type of vessel for Great Lakes service, having such a wide range of operation, is bound to be a great factor in the economic transportation and distribution of cargoes.

*From the *Live Wire* by Frank Jeffrey, general superintendent, Detroit Ship Building Co.



SEABURY BOILERS FOR PACIFIC COAST

Atlantic Boilers for the Pacific

The accompanying illustration from the boiler shops of the Seabury Company at Morris Heights, New York, shows the latest group of Seabury boilers just prior to shipment. The first boiler at the left is for the United States survey launch Alpha, and the second for the United States survey launch Delta, while the large boiler, partly crated, is for the United States coast and geodetic survey steamer Taku and is a duplicate of that now in their steamer Yukon. All of these vessels are in service in the waters of the North Pacific—and this group represents the latest of several recent shipments to the Pacific coast, from the Morris Heights works. The boiler at the extreme right was shipped to Havana, Cuba, for the Havana Marine railways.

A Seaman's Bill Ruling

A decision of importance to owners of freighters has just been rendered by the Department of Commerce. Mr. H. Penton, of Babcock & Penton, naval architects and engineers, contended that the date on which the sections of the Seaman's Bill relating to life boats, davits and buoys became effective was of no importance because of his belief that these sections did not apply to vessels carrying freight only and submitted the question to the Department. The secretary's reply follows:

Sir:—The department is in receipt of your letter of March 20, 1915, in reference to the applications of certain clauses of the so-called "Seaman's Bill," and in reply you are advised that so far as the Great Lakes are concerned the department is of the opinion that they do not apply to exclusively freight steamers.

Respectfully,
(Signed) E. F. Sweet,
Assistant Secretary.

This decision will relieve owners of a considerable burden of expense in providing mechanically operated davits, buoys, etc.

The tug Henry E. Gillen, building at the Ashtabula yard of the Great Lakes Engineering Works for the Gillen Dock, Dredge & Construction Co., was launched on April 14. The new tug is 85 feet over all, 20 feet beam and 12 feet molded depth.

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Chinese Training Cruisers

Description of the Ying Swei and Chao Ho Turned Out in British Yards Prior to the European Conflict

GREAT BRITAIN has built many vessels for the Chinese government and turned out two just prior to the outbreak of the European war. Of these vessels, the Ying Swei was built by Messrs. Vickers, Ltd., of Barrow-in-Furness, England, from plans prepared by T. G. Owens, the naval constructor and special director of Messrs. Vickers, while the Chao Ho was constructed by Sir W. G. Armstrong, Whitworth & Co., Ltd., from the designs of J. R. Perrett, the general manager of the Elswick Shipyard, and the chief naval architect to the well known Tyneside company. The principal dimensions are as follows:

	Ying Swei	Chae Ho
Length between perperdiculars	330 ft.	330 tt.
Breadth molded...	39 ft. 6 in.	42 ft.
Depth molded.....	23 ft. 9 in.	23 ft. 6 in.
Mean draft.....	13 ft.	14 ft. 9 in.
Displacement, approximate, tons...	2,460	2,750
Speed, knots	20	22¼
Coal bunker capacity, tons.....	600	550
Oil fuel capacity, tons	55	100
Normal supply of coal, tons.....	225	150

The armament of the Ying Swei consists of two 6-inch guns, four 4-inch guns, two 14-pound guns, six 3-pound guns, two 1¼-pound guns, and two 18-inch deck torpedo tubes. The two 6-inch guns are situated on the forecastle and poop decks, and have arcs of training from the fore and aft line to 60 degrees abaft or before the beam respectively on each side of the vessel. The 4-inch guns are situated on each side of the upper deck at the break of the poop and forecastle, and have angles of training from the fore and aft line to 60 degrees before and abaft the beam respectively. The 12-pound and 3-pound guns are situated along each side of the upper deck amidships, and have angles of training of from 60 degrees before to 60 degrees abaft the beam. The 1¼-pound guns are placed on each side of the navigating bridge, and have angles of training of from 30 degrees across the bow to 30 degrees abaft the beam. The torpedo tubes are situated on the upper deck aft of amidships, and have angles of from 30 degrees before to 30 degrees abaft the beam. The gun-fire is controlled from the forward bridge and the torpedo tube can be fired from the conning tower or at the tube. For the rapid delivery of the ammunition to the 6-inch and 4-inch guns electric bollard hoists have been introduced, the ammunition being protected on its way to the guns by steel tubes 1 inch thick.

An armored deck of varying thickness, with sloping sides extending well below the waterline, affords protection to the magazines and other vital parts of the ship. The disposition of the coal has also been considered so as to afford the maximum protection from gun-fire. A conning tower of 3-inch Krupp cemented armor is situated on the forecastle deck, and is fitted with all the usual and necessary appliances for the working and fighting of the vessel. A steel communication tube from the floor of this conning tower to the protective deck provides protection for the various leads of shafting, etc., passing from the conning tower to the interior of the vessel. The ship is constructed throughout of steel, and divided into numerous watertight compartments by watertight bulkheads and flats. The foremost bulkhead is specially strengthened to withstand an inrush of water from the sea. A double bottom extends for almost the entire length of the vessel, and is fitted with the usual appliances for dealing with the oil fuel, feed water and water ballast. Trimming tanks are provided at the ends of the ship and there are also tanks for the storage of a large supply of fresh water. There is accommodation for 230 officers and men, and for 40 cadets. The quarters of the captain and chief officers are under the poop deck, and for the remainder of the officers and cadets under the upper deck aft. The crew is berthed under the forecastle and upper decks. Sick bay, dispensary, schoolroom, and the usual bath and lavatory accommodation are provided for the officers and crew. The magazines and shell-room, steering gear, and capstan engine are placed under the protective deck, and there is ample store room in the hold and elsewhere. A refrigerating plant is installed in connection with the cold storage arrangements, and also for maintaining a low, even temperature in the magazines.

The Ying Swei is fitted throughout with a complete installation of electric lighting and power with two generating sets, each capable of supplying the electricity necessary for the ship under ordinary conditions. Two 24-inch searchlights of standard type, one forward and one aft, are fitted on specially constructed platforms, and there is a complete range-finding equipment on the compass platform forward. The propelling machinery is of the Parsons' turbine type, having three lines of shafting, with one propeller on each shaft. The turbines, arranged in one engine-room, comprise one high-pressure ahead turbine on the center shaft, and one low pressure ahead on each wing shaft. The wing shafts are arranged for working astern, a reversing turbine being incorporated in each of the two low pressure turbine casings. In addition to the main steam connections to the high pressure ahead turbine there are separate steam connections with regulating valves fitted to each of the low pressure ahead and astern turbines.

For economical working at low speeds a cruising element is fitted in the high pressure end of the high pressure turbine. All the turbine bearings and shaft bearings are arranged for forced lubrication, pumps being supplied for this purpose together with an oil cooler and tanks, etc. The main air pumps are independent direct acting, one for each condenser. The two condensers are arranged in the wings of the ship, and they are cylindrical in form with the casings built up of steel plates and angles with conical ends made of gunmetal. The circulating water is supplied by two centrifugal pumps driven by independent single cylinder engines, the pumps being also arranged to draw from the bilges. The shafting throughout is made of forged steel, and the various lengths are filleted into one another. The propellers are three-bladed, the bosses and blades being cast solid of manganese bronze. The wing propellers are arranged to work outwards when going ahead. The distilling and evaporating machinery is of ample capacity, two evaporators, capable of supplying 35 tons of water per 24 hours, and one distilling condenser capable of condensing all the steam from the evaporators are fitted. The evaporators work under the closed exhaust system, the steam pressure in the generating coils being 25 pounds per square inch taken from the auxiliary steam service. There are six boilers, including water-tube, cylindrical boilers, and generators of the White-Forster type, the latter being arranged to burn oil fuel as well as coal. The water-tube boilers are four in number, and they are capable of producing steam for about two-thirds of the total horsepower, and the cylindrical boilers are of the single-ended

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

return tube type, designed to work under the forced draft closed stokehold system. The total heating surface is 12,900 square feet, and the total grate surface is 287 square feet. The results attained during the official speed and other trials of the Ying Swei are shown in the table:

	24 Hours' Trial. Mean results of whole trial	24 Hours' Trial. On measured mile.	Full-power trial. On measured mile.	Two hours oil fuel with cylindrical boilers only.
Shaft horsepower	1,100	1,278	6,375	2,088
Mean revolutions, 3 shafts	311	330.6	556.5	396.
Speed on revolutions	12.3	....	....	15.8
Speed on miles	....	13.14	21.21	....
Coal consumption, lb. per h. p., per hour	2.6	....	....	....

The Chao Ho is the twenty-second vessel constructed by the firm of Sir W. G. Armstrong, Whitworth & Co., Ltd., at Elswick and Walker for the Chinese government. Her predecessors included the Chih Yuan and Ching Yuan, protected cruisers of 2,317 tons displacement and 7,000 indicated horsepower, these vessels being completed in 1887. Two years later, the Elwick company completed for the Chinese government the Hai Chi and Hai Tien, both constructed from the same design, the first mentioned at Walker and the second at Elswick. These vessels had a displacement of just over 4,500 tons, and with machinery of 17,000 indicated horsepower they attained the remarkable speed of 24 knots. A number of twin-screw gunboats, known as the alphabetical type, comprising 11 vessels, were previously built at Walker, in addition to the twin-screw turret vessels Chao Yung and Yung Wei, each of about 1,400 tons displacement.

Following the practice initiated by Elswick with the launch of the British cruiser Newcastle, the Chao Ho was launched with her machinery and boilers on board, funnels erected, and a great deal of other work in connection therewith at an advanced stage. The armament consists of two 6-inch guns, four 4-inch guns, two 3-inch guns, six 3-pounder guns, two maxim guns, and two 18-inch above-water torpedo tubes. The 6-inch guns are mounted on the poop and forecastle, and they are capable of firing direct astern and ahead, or to 60 and 50 degrees respectively before and abaft the beam. The 4-inch, 3-inch and 3-pounder guns are on the upper deck on each broadside, and the maxims are mounted on the topsides. Electrical hoists are fitted for the supply of ammunition to the 6-inch, 4-inch and 3-inch guns. Torpedo tubes are arranged on the upper deck aft. Accommodation is provided on the upper deck under the poop for the captain and chief officers, on the lower deck for midshipmen, junior officers and engineers, whilst the crew are berthed forward on the upper deck and under the forecastle. The complement of the vessel is 350 officers and men. The turbine machinery of the Chao Ho is of the Parsons' type, having three lines on shafting with one propeller on each shaft. Steam is generated by six boilers, two of which are of the latest Yarrow type, and four of the cylindrical single-ended return tube pattern. These boilers are arranged to work under forced draft. The official trials comprised: (a) 24 hours' consumption trial; (b) 12 hours' trial at 5,200 single horsepower, and (c) a full power trial of four hours' duration. During the last mentioned trial the speed, it was specified, was not to fall below 20 knots. On the 12 hours' trial the actual speed attained was 20¾ knots, and on the full speed trial the speed attained was 22¼ knots, or 2¼ knots in excess of the contract speed, showing a very high propulsive co-officient. The usual trials of auxiliary machinery, anchor trials, steering, torpedo, circle and gun-firing trials were also carried out with very satisfactory results. It may be added in conclusion that the propelling machinery and boilers of the Chao Ho were designed and constructed by Messrs. R. & W. Hawthorn, Leslie & Co., Ltd., of St. Peters, Newcastle-upon-Tyne, and they, as well as Sir W. G. Armstrong, Whitworth & Co., Ltd., are to be congratulated on providing the Chinese navy with a vessel which has so fully met the conditions for which she was designed. The special features of the designs of these two training cruisers of the Chinese navy may be summarized: (a) The great variety in the class of guns fitted; (b) The different types of boilers on board; (c) The adoption of different systems of auxiliary machinery, as far as is consistent with efficiency, for the education of officers and crew; (d) The unusually large quantity of ammunition carried—160 rounds for each of the two 6-inch guns, and 1,000 rounds for each of the smaller guns — which permits of extensive battle practice, and confers the advantage in the maintenance of a long engagement in war; (e) The embodying of an unusually thick protective deck—1½ inch—in such a light cruiser; and (f) the endurance of a speed of 20 knots under easy steaming conditions and without exacting that care and organization in the stokehold which come only with prolonged experience.

Work in Coast Yards

Contracts placed with eastern ship yards in the past four months for new construction total 26 vessels. A dispatch to *The Daily Iron Trade* states that an eastern ship yard is asking prices on 18,000 tons of steel, including 12,000 tons of plates for shipment by June. This apparently represents four additional ocean boats for which contracts either now have been closed or are about to be. The inquirer is the Fore River Ship Building Co.

The New York Ship Building Co., at Camden, N. J., has orders for eight large merchantmen, and the company is now constructing tonnage totaling 77,300, all but 12,300 tons being ordered after it was practically certain that the government ship purchase bill would fail.

The Maryland Steel Co., Sparrows Point, Md., has six merchant steamships under construction or contract, of about 42,600 tons. Three of these are for the American-Hawaiian Co., operating between the Pacific coast, Hawaii and the Atlantic seaboard. This company possesses the largest cargo fleet under the American flag—28 fine vessels, and all of American construction.

The yard of the Fore River Ship Building Co. is filled largely with government work, for Fore River has specialized on submarines, but the yard recently has contracted for two large oil ships, and is expecting further orders.

The yard of the William Cramp Ship & Engine Building Co., Philadelphia, holds considerable naval tonnage, but has one important merchant ship, of 10,000 tons, building for the new American fleet of W. R. Grace & Co., plying coastwise through the Panama canal.

The Harlan & Hollingsworth Ship Yard, Wilmington, Del., has on hand two large ships, totaling 16,800 tons. These are oil steamers for the Sheel Co., of California.

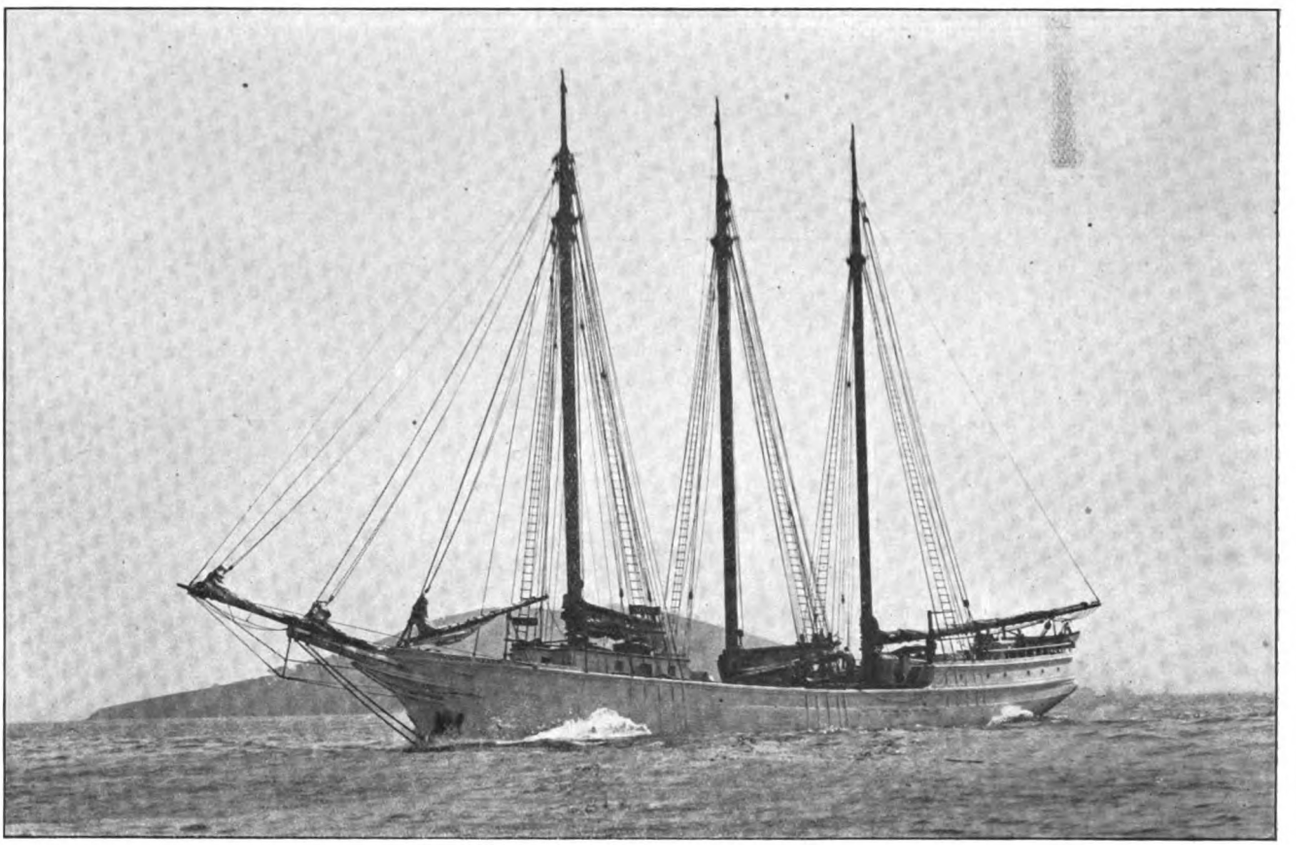
At the yard of the Newport News Ship Building & Dry Dock Co., in Virginia, six merchant ships are under construction, totaling 62,500 tons. All of these ships have been contracted for since Dec. 15, last, and four of them were not ordered until after Christmas.

On the Pacific, the Union Iron Works, San Francisco, recently contracted to build a general cargo steamer of 10,000 tons, for the firm of Hind, Rolph & Co., San Francisco.

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Auxiliary Fishing Schooner

The Golden Gate, Equipped With a Four-Cylinder 150 H. P. Distillate Engine, is the Largest Yet Constructed for Alaskan Waters

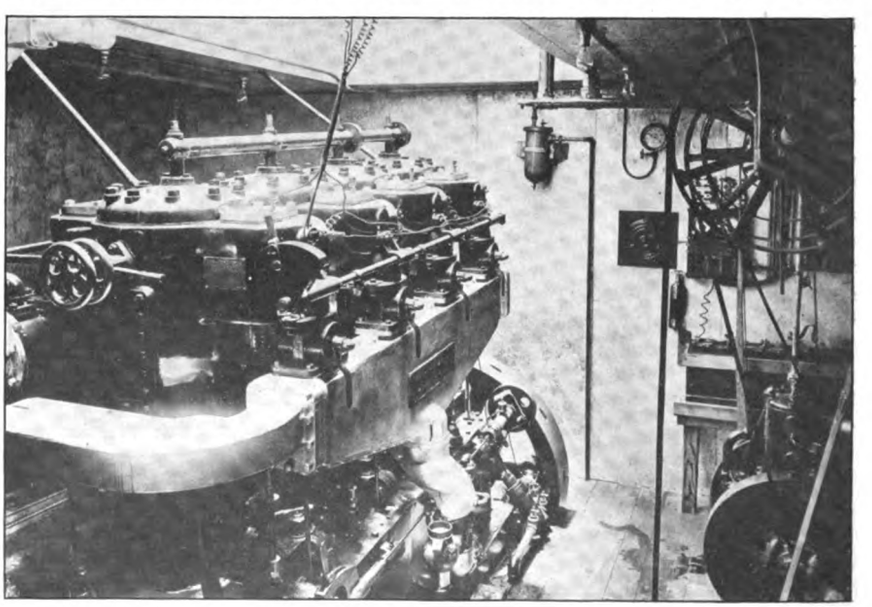


AUXILIARY SCHOONER GOLDEN GATE

THE application of the internal combustion engine as auxiliary power to sailing vessels, is perhaps one of the most interesting phases in the development of this type of engine. The advent of motor power as auxiliary to the main agent of propulsion, that is, spread of canvas, has in the last few years exercised a reviving influence in the building and operation of sailing ships, and it is this factor that will unquestionably be the salvation of the declining "windjammer". It has been prophesied that 20 years hence, the sailing vessel would be extinct, but on account of the satisfactory and efficient results that are being obtained by combining motor and wind power, it is hardly probable that the next quarter century will witness the disappearance of sails from the seas.

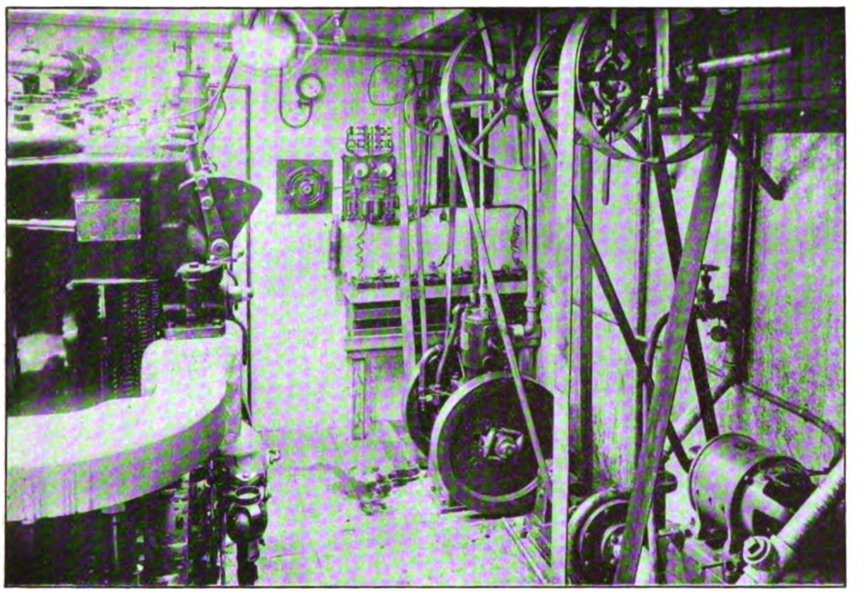
Of particular advantage to the large fleet of Alaskan fishing schooners, has been the development of the internal combustion engine, and the owners of these vessels have been quick to adopt it. The need of prompt and reliable service and the dangers and disasters of the past, along the rocky coast of Alaska, have made some form of power driven vessel almost imperative.

The three-masted schooner Golden State is the largest auxiliary vessel that has yet been constructed for the Alaskan fishing trade and her successful operation has already led to the construction of other boats of similar character. The run of this schooner



OPEN CROSSHEAD TYPE PROPELLING ENGINE OF 150 H. P. IN AUXILIARY SCHOONER GOLDEN GATE

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



ELECTRIC LIGHT AND PUMPING SET OF AUXILIARY SCHOONER GOLDEN GATE

lies between San Francisco and Pirate Cove, Alaska, and formerly consumed from 25 to 30 days. Since the installation of auxiliary power, however, this time has been reduced to 13 to 15 days.

The hull of the Golden State is of wood throughout, the design being extremely substantial in order to withstand the severe storms of the North Pacific. She was built at San Francisco of specially selected and dry wood, thus insuring a longer life than when put in damp, as is often the case in northern yards.

Golden State's dimensions are as follows: Length, 145 feet; beam, 32 feet, and depth, 11½ feet. She has a carrying capacity of approximately 500 tons of fish.

The main power installation consists of a 4-cylinder, 150-horsepower distillate engine of the open crosshead type placed under the after cabin. This engine is connected to a two-bladed propeller through the usual disc clutch and reverse gear.

Traffic of Suez Canal

How the war has effected the income of the Suez canal during the year 1914 is shown in the details of the year's navigation compiled by Worms & Co., of Port Said. During 1914 a total of 4,802 vessels passed through the waterway, as compared with 5,085 vessels in 1913 and 5,373 vessels in 1912. The year 1914 opened with the far eastern trade depressed. Sailings to China, Japan and Australia were reduced in volume and it was noted that the monthly revenue returns of the canal were lower than those of the same month in 1913.

The following tabulation shows the number and gross tonnage of vessels using the Suez canal each month during the year, giving for comparative purposes the same data for the two previous years:

Month.	1912 No. of vessels.	1912 Gross tonnage.	1913 No. of vessels.	1913 Gross tonnage.
Jan.	484	2,612,071	454	2,484,241
Feb.	466	2,831,330	411	2,197,257
Mar.	497	2,535,857	477	2,547,004
Apr.	451	2,313,024	407	2,267,693
May	494	2,517,213	429	2,311,811
June	433	2,194,536	399	2,128,813
July	454	2,354,170	422	2,308,211
Aug.	409	2,098,002	397	2,159,742
Sep.	407	2,168,393	395	2,162,879
Oct.	426	2,297,915	438	2,413,753
Nov.	424	2,270,274	405	2,285,840
Dec.	428	2,316,160	451	2,469,936
Total	5,373	28,008,945	5,085	27,737,180

Month.	1914 No. of vessels.	1914 Gross tonnage.
January	452	2,424,905
February	434	2,391,484
March	476	2,605,178
April	460	2,534,693
May	400	2,269,280
June	368	2,082,222
July	393	2,317,404
August	250	1,402,864
September	323	1,721,195
October	479	2,635,446
November	370	2,030,245
December	397	2,451,424
Total	4,802	26,866,340

The passage of 4,802 vessels in 1914 yielded the canal company 117,388,000 francs in canal dues, while the total receipts of the company from canal dues and other enterprises carried on, such as coaling and watering stations, amounted to a total of 122,249,000 francs. In 1913 the canal dues aggregated 122,980,000 francs, while the total receipts were 126,651,000 francs. In 1913 the canal dues amounted to 132,912,000 francs and the total receipts 136,424,000 francs. The 4,802 vessels which navigated the canal in 1914 had a gross tonnage of 26,866,340 tons and a net tonnage of 19,409,495 tons. In 1913 a total of 5,085 vessels used the canal and had a gross tonnage of 27,737,180 tons and a net tonnage of 20,033,881 tons, while in 1912 a total of 5,373 vessels went through the canal having a gross tonnage of 28,008,945 tons and a net tonnage of 20,275,120 tons.

As usual, the British flag was preeminent on the canal, the Union Jack appearing on 66.09 per cent of the vessels. Germany is second with 11.02 per cent and Holland third with 7.17 per cent. The following tabulation gives the percentage of respective flags based on gross tonnage which passed through the canal during the year 1914:

Nationality.	Per cent.	Nationality	Per cent.
British	66.09	Greek	0.67
German	11.02	Swedish	0.65
Dutch	7.17	Norwegian	0.48
French	4.53	Spanish	0.39
Austrian	3.24	Turkish	0.13
Italian	1.94	Siamese	0.03
Japanese	1.81	American	0.02
Russian	1.01	Persian	0.01
Danish	0.81		
			100

Analysis of the figures of the year's navigation shows that, while the total tonnage reported in 1914 was less than that of the two previous years, the individual tonnage of Great Britain, Holland, Greece, Italy, Sweden and Turkey increased in 1914 over 1913. The following compilation gives the number of vessels of each nation which passed through the canal in 1914, with their gross tonnage:

Flags.	1912 No. of Vessels.	1912 Gross Tonnage.	1913 No. of Vessels.	1913 Gross Tonnage.
American	5	6,540	8	12,230
Austrian	248	1,106,971	246	1,162,441
British	3,335	17,611,210	2,951	16,537,505
Chinese	1	3,216	2	4,046
Danish	45	183,361	56	227,985
Dutch	343	1,718,071	342	1,786,747
French	221	1,193,181	256	1,401,543
German	698	4,241,001	778	4,694,350
Greek	10	34,401	17	70,088
Italian	143	523,888	110	409,836
Japanese	63	441,032	68	475,585
Norwegian	60	121,389	44	123,340
Persian	...	.....	7	8,149
Portuguese	1	1,564	1	1,564
Russian	126	499,122	110	463,477
Siamese	9	31,922	7	24,831
Spanish	26	104,852	26	106,388
Swedish	38	183,552	33	163,838
Turkish	1	3,672	23	63,237
Total	5,378	28,008,945	5,085	27,737,180

Flag.	1914 No. of Vessels.	1914 Gross Tonnage.
American	3	5,264
Austrian	176	870,140
British	3,078	17,756,322
Chinese	...	.....
Danish	42	217,345
Dutch	347	1,925,036
French	228	1,217,406
German	481	2,961,755
Greek	49	178,724
Italian	131	521,866
Japanese	64	486,817
Norwegian	41	127,947
Persian	3	3,769
Portuguese	...	.....
Russian	71	272,140
Siamese	2	7,092
Spanish	26	103,948
Swedish	35	175,707
Turkish	25	35,062
Total	4,802	26,866,340

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Lake Carriers' Night Schools

THE INSTRUCTORS OF THE NIGHT CLASSES CONDUCTED IN THE ASSEMBLY ROOMS OF THE LAKE CARRIERS' ASSOCIATION

Reading from left to right: George A. Green, Cleveland; Miss Anna Meinhart, Duluth; D. W. Corcoran, Milwaukee; Warren P. Frye, Detroit; Harry Stone, Marine City; H. R. Smallenburg, Buffalo

THE educational committee of the Lake Carriers' Association held an interesting meeting with the instructors of the night classes during the first week in April. These classes have been held in the assembly rooms of the association in the ports of Buffalo, Cleveland, Detroit, Marine City, Milwaukee and Duluth. During the past winter the sessions extended from Jan. 4 to March 31. The instructors were: H. R. Smallenburg, Buffalo; George A. Green, Cleveland; Warren P. Frye, Detroit, Harry Stone, Marine City; D. W. Corcoran, Milwaukee, and Miss Anna Meinhart, Duluth. The members of the committee attending the meeting were E. C. Collins, chairman; A. W. Thomson and C. J. Peck.

The attendance at the classes was not quite as large as it was during the year before, but the instructors reported that interest was more centered and that real progress was made. Harry Stone believed it would be a good idea to issue a little booklet weekly or monthly during the winter period to be distributed freely among the sailors outlining what the schools were intended to accomplish and inviting them generally to join in this work. The subject was also broached of taking up the work a little earlier in the year, but it was felt that if there should be any break in the work during the holidays, whatever work might be accomplished by an early start would be lost. Mr. Smallenburg, however, pointed out that the holidays really meant nothing to the men and that the men certainly would not object to studying through them if the instructors did not. It is practically impossible to continue these sessions much later in the spring as the men begin to arrive in the ports looking for work in April.

Miss Meinhart reported that her pupils took to writing readily, but cared little for reading. She interested them in arithmetic by making her problems apply to the costs of operating a steamer. Mr. Corcoran said that out of an attendance of about 250 in the assembly rooms at Milwaukee, only 15 or 20 attended the classes and that they were among those who required instruction least. Some of those who actually did attend the classes were capable of taking a high school course. He could not account for the reluctance of the men to enter the classes except possibly on the basis of timidity. He added that they never appeared to be interested in anything except live questions. Whenever any current public topic was advanced they became instantly animated.

It was suggested by Mr. Smallenburg that lectures during the afternoon might have a tendency to help in his work. Stereopticon lectures in the evening were highly recommended.

Harry Stone, of Marine City, is more advantageously situated than the other instructors in helping the men along practical lines in that he is an engineer by profession. He has made it possible for a number in his classes to obtain licenses and obviously this is the end that the educational committee is seeking. How to bridge this gulf in the other schools is one of the problems. It would seem to require additional instructors for both ends of the ship after the pupils had been schooled in the rudi-

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

ments of education. Various things were suggested such as having instructors in navigation and engineering visit the various schools or in starting a school of correspondence. The work of the schools will undoubtedly be broadened as soon as some practical plan can be hit upon.

During the winter classes in knot tying, rope splicing and in boxing the compass were introduced in the assembly rooms during the afternoons and evoked more interest than anything that has yet been attempted. These classes were very well attended and the men seemed to relish the work.

The instructors submitted a program in language, reading, spelling, civil government and United States history, which the committee will later consider.

The class at Marine City adopted the following resolution at the close of the winter's work:

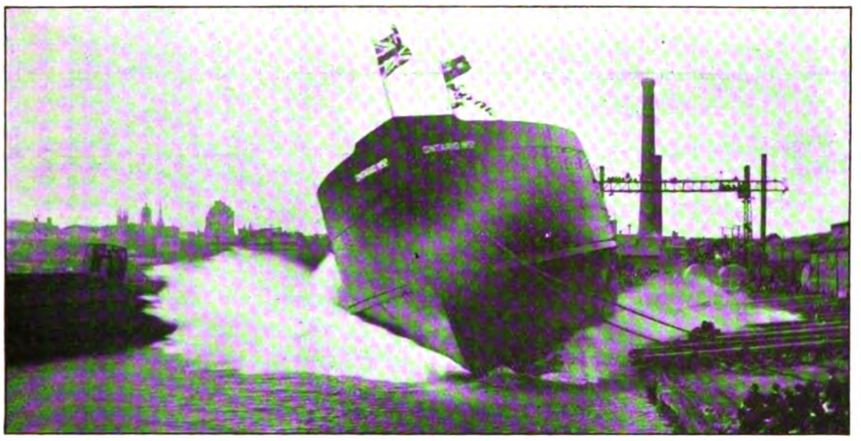
"Whereas, It has been the pleasure of the Lake Carriers' Association to voluntarily extend to us, without any financial obligation whatever on our part, the advantages of night schools and facilities for improving our condition intellectually, so as to enable us to better perform our duties toward our employers, our country and ourselves,

"Therefore, we resolve, that we extend to the Lake Carriers' Association our sincere gratitude and sense of lasting obligation to them for the interest they take in promoting our welfare and the hope that it may prove a lasting bond of good will among all concerned.

"We wish also to express thanks to the educational committee for kindly keeping us informed of the progress of the night schools in other cities, which has been very much of a stimulant to our endeavors in the same direction."

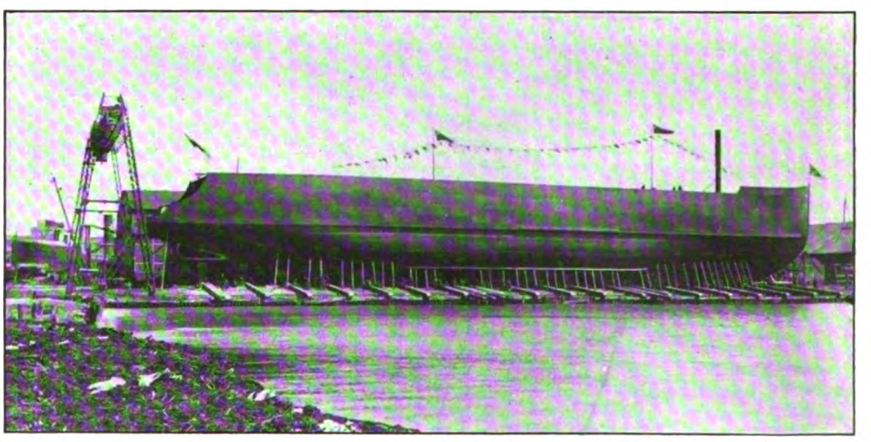
Car Ferry Ontario No. 2

Car ferry Ontario No. 2, building for the Grand Trunk Railway, was launched at the yard of the Polson Iron Works, Toronto, on Saturday, April 3. The work was started on Nov. 7, last, and delivery was promised July 15. The general dimensions of the car ferry are: Length over all, 318 feet; beam, molded, 54 feet; depth to main deck, 20 feet 6 inches; draught of water, loaded, 16 feet 3 inches.



LAUNCH OF CAR FERRY ONTARIO NO. 2

The car ferry is of the shelter deck type with four tracks for cars on the main deck, and is built on the transverse system with solid plate floors and bulb angle frames. The scantlings throughout are extra heavy for work in ice as the ferry will run all year around and has been built to the classification of the Great Lakes Register.



CAR FERRY ONTARIO NO. 2 IN STOCKS

The main deck is of steel throughout. The shelter deck is of steel laid flush with steel deck house running throughout its entire length and containing accommodations therein for 1,000 passengers as well as officers and crew. The pilot house and bridge on top of deck house forward is of wood. There is also a pilot house aft at after end of deck house. The hull is subdivided by six transverse watertight bulkheads extending from keel to main deck. There are three water ballast tanks, two forward of boiler room and one aft of engine room. A lower deck of steel is laid throughout forward and aft holds on both peaks, forming tops of deep water ballast tanks.

The car ferry will have capacity of 30 standard cars of 68 gross tons weight each, and 200 tons of fuel in bunkers. The machinery consists of two main engines operating twin screws. Each engine is of the triple-expansion, jet condensing type with cylinders 20½, 33 and 54 inches diameter by 36-inch stroke, running at 110 revolutions per minute and designed to pass Canadian government inspection for 180 pounds working pressure. The boilers are four in number, 14 feet in diameter by 12 feet long, Scotch marine type, fitted with Howden draft.

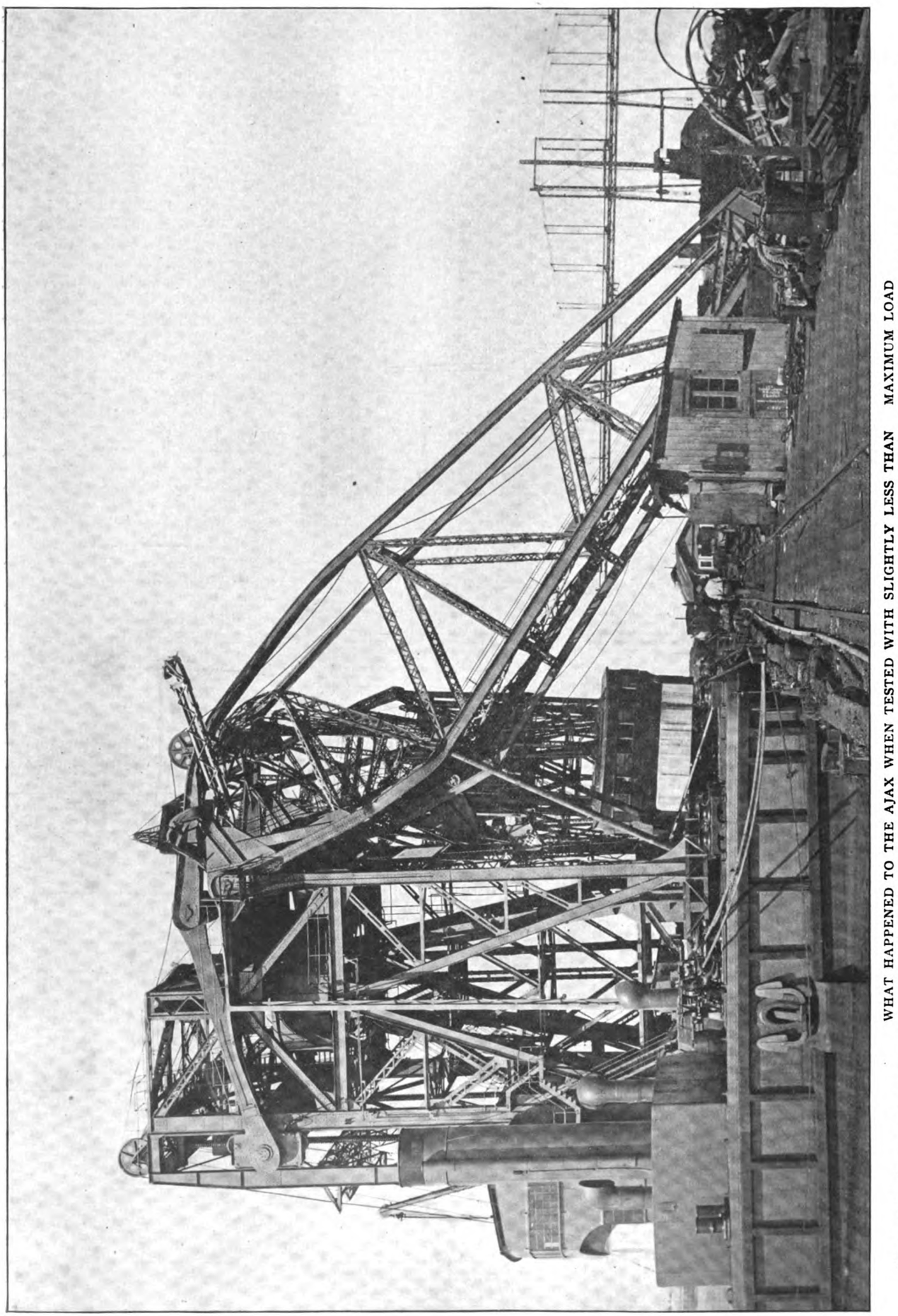
The auxiliary equipment is complete, including electric light plant, steam heating system, steam steering gear, double drum mooring winch, refrigerator plant and wireless outfit.

John Currie, custodian of the licensed officer's rooms of the Lake Carriers' Association at Marine City, was presented with a Masonic signet ring with diamond setting properly engraved at a smoker given by the licensed officers on Saturday evening last.

A request has been received for a copy of the March 13, 1902, issue of the *Marine Review*. An extension of three months subscription will be given to anyone sending in this issue.

The bulk freighter H. M. Hanna Jr. which was wrecked off Point Aux Barques during the great storm of November, 1913, and which was purchased by James Playfair, has been renamed Glenshee.

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



WHAT HAPPENED TO THE AJAX WHEN TESTED WITH SLIGHTLY LESS THAN MAXIMUM LOAD

When subjected to a test load of 120 tons, the boom failed with the result shown above. This crane was chosen by the Canal Commission in preference to an American built machine. From four to six months will be required to repair it.

Courtesy Leslie's Weekly—Copyrighted.

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

A National Disgrace

How a German Crane Preferred by Panama Canal Commission to American Product Failed to Make Good

PURCHASED by the United States government for the Panama canal; paid for by the American people; made in Germany while thousands of skilled American workingmen walked the streets jobless; not built according to specifications; not finished on time; collapsed, wrecked and ruined while being tested—such in brief is the sad story of Ajax, one of the two largest floating cranes ever constructed. The real history of the affair of the Ajax and Hercules has never been published and probably never would have been, had not the Ajax come to grief, thus focusing attention on a story that should make every patriotic American citizen see red.

What the Cranes Are For

As a part of the auxiliary equipment of the Panama canal, two huge floating cranes are to be provided for handling boilers and other extra heavy weights in and out of ships and for lifting lock gates and similar pieces of canal equipment. One of these cranes is to be stationed at each end of the canal. The cranes were designed specially so that they might serve as naval auxiliaries and be useful in handling big guns and other heavy equipment on the battle ships. The specifications called for a lifting capacity of 250 tons at 62-foot reach, thus making the cranes, it is believed, the largest of their kind ever constructed. They will be one of the great sights at Panama and if they are ever successfully completed they will form two gigantic monuments to German engineering ability, one at each end of an American-built canal. American self respect may well feel humiliated at this situation and pointing an accusing finger at certain government officials, ask—

Why?

An Odious Transaction

The transaction is particularly odious because there is every indication that the American bidders were the victims of unjust and unfair discrimination on the part of the officers of the canal commission.

The commission advertised for bids for the cranes under date of Oct. 30, 1912, the invitation for proposals being signed by F. C. Boggs, Major, Corps of Engineers, U. S. A., general purchasing officer. The qualifications for bidders, specifications and other details were given in Isthmian Canal Circular No. 743. The first page of this circular contained the following significant paragraphs which were printed in italics:

"The attention of bidders is especially invited to those parts of the specifications which require the submission, with the proposals, of plans, specifications, descriptions, weights, dimensions, calculations, and other data.

"The requirements of these specifications are to be considered as a minimum. In making the award, the experience, reputation and facilities of the bidder as indicative of his ability to satisfactorily complete the work within the time specified, the quality of his design, the reaches, the speeds and simultaneous motions provided, and the character and quantity of materials he proposes to furnish, will be taken into consideration."

The Low German Bid

Don't forget this quotation in light of the facts which are given below. The bids were opened Jan. 31, 1913. There were four proposals, one from a leading firm of German engineers and machinists, to whom the award finally was made; one from a widely known firm of American crane builders; one from a prominent English constructor; and an informal proposal from Schniedam, Holland. There were, therefore, only three formal proposals. This in itself is significant in view of the great importance of the contract and the fact that it had been widely advertised. The scarcity of bids indicates that the specifications were unusually rigid, or that there were other circumstances connected with the transaction which prevented other responsible firms from even attempting to obtain the contract.

The German bid was $821,300; the English proposal was 230,000 pounds sterling, equivalent approximately to $1,118,000, and the figures of the American bidder were $1,450,000. It will be noticed that the English and American figures were above a million dollars, while the German bid was startlingly low. This would indicate at once that something was wrong, and such was the case.

What a Comparison Revealed

A careful comparison of the bids showed that both the English and American concerns figured on a very much larger machine than the firm of German builders intended to construct. The American design called for a machine weighing 8,300,000 pounds, as against a weight of 5,960,000 pounds for the German crane. This difference in weight very largely accounted for the difference in price, the various prices per pound being practically the same. The collapse of the Ajax under test indicates that in this case the German builders miscalculated. A further comparison of the bids revealed the fact that the German machine would not quite make all the reaches that were specified in italics on the front page of the government circular quoted above. These reaches were to be considered a minimum, it will be remembered. The Germans took up this point on page 38 of their specifications, stating that "at a much increased cost with a correspondingly high figure in this tender, the outreaches could be increased over the end of the pontoon, etc." In other words, they deliberately fell short of the specified

The Story in a Nutshell

Two gigantic floating cranes are being built for the government as a part of the auxiliary naval equipment at the Panama canal.

Bids for the cranes were opened in Washington, Jan. 31, 1913, and the contract was awarded to a German firm, in face of strong competition from the United States.

The German price was lowest and was accompanied by a promise to finish the cranes quicker than anyone else, but—

The German bid was not according to specifications.

The cranes were not finished on time, are not done yet, in fact.

And the first one to be tried, the Ajax, collapsed under a test load of 120 tons.

While these cranes were being built by Germans, skilled American artisans tramped our streets begging for work and the money to pay for the cranes came from the pockets of the American people. Should this sort of thing be tolerated?

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

minimum and properly stated that they had. This consideration alone should have been sufficient grounds for rejecting the German proposal. Other paragraphs in the specifications made it necessary to prepare numerous actual drawings showing the sizes of the machinery in detail, even to the sizes of gears and shafts, without which it was stated that the proposals would be irregular. Of course, it cost a considerable sum of money to make plans of this nature, and the German bidders saved themselves large portion of this expense. They did not detail their machinery as specified and this point was waived in their favor when the award was made. The specifications called for a long list of spare parts. The German bidders omitted these in order to give a lower price, and this point also was waived. It would, at least, be interesting to know why the canal commission holds such a tender regard for foreign engineering firms that it is willing to waive many important points in the specifications covering one of its largest contracts.

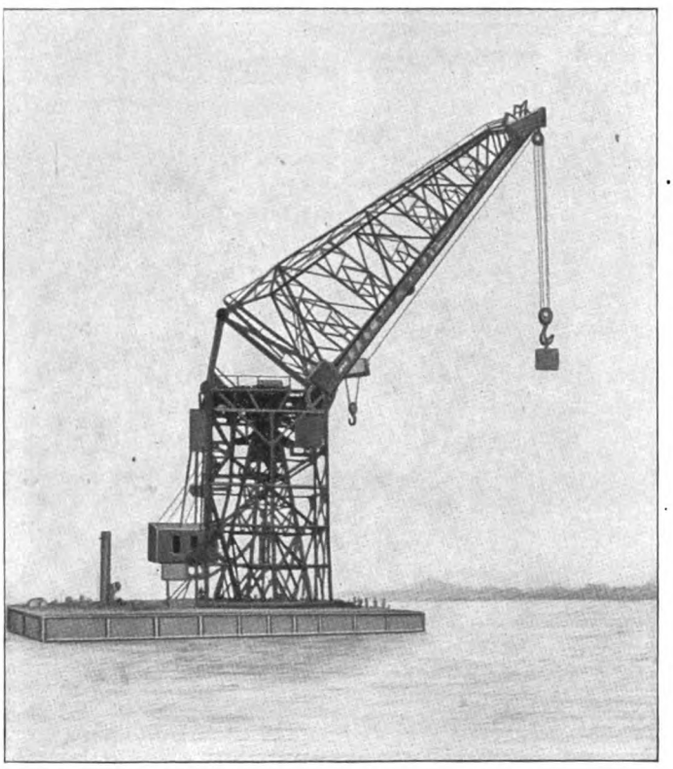
Keeping a Secret.

The commission made an estimate itself as to what these cranes should cost and this figure was $850,000. Previous to the opening of bids, in order to be fair to all concerned, the estimate of the commission was a secret. In view of this, the fact that the German bid comes within 3½ per cent of the amount of money which the commission estimated it could spend on the job, is interesting, to say the least. One of the important reasons given by the commission for awarding this work to Germany was the earlier delivery which was promised. Now as to the outcome of this transaction. The machines should have been completed during August, 1914. At the present time they are not finished and only one of the cranes, the Ajax, has been sufficiently completed to be tested. The Hercules is not yet in shape for a test. It remains to be seen whether the government will collect the penalty which was specified for delay in delivery. Also it should be pointed out that this delay has not been due to the war, inasmuch as the cranes were shipped prior to the outbreak of the conflict and are being completed at Panama, absolutely free from all interference of a military nature.

What happened when the Ajax was tested now is well known. It was specified that this crane should handle, in addition to the 250 tons at 62-foot reach, 100 tons at a reach of 82 feet, and to each of these loads 20 per cent should be added as a test of strength.

Where was Factor of Safety?

The maximum fiber strain permitted by the specifications should have allowed a factor of safety of over 3½ with a load of 120 tons at 82 feet. As a matter of fact the Ajax collapsed with the test load of 120 tons at a reach of 81.6 feet, nearly half a foot less than the maximum called for under the test. The condition of the wreck is shown clearly in the accompanying illustration. The stress developed in the members which failed was said to be a little over one-third of what they should have withstood. No wonder the canal commission has appointed a committee to investigate.



THE CRANE BEFORE THE ACCIDENT

How the Test Was Made

The 100-ton weight prescribed in the test was represented by a huge block of concrete on the ends of which the exact weight in pounds were lettered. When the test on the lift of 120 tons was begun, rails were piled between supports which had been embedded in the concrete block. The block, together with the rails, had been lifted to a height of 3 or 4 feet from the ground when the boom of the crane collapsed. Parts of the steel frame which were bent and twisted will have to be replaced entirely; other parts can be used again. In view of the fact that new material cannot be obtained from Germany at present, the repairs undoubtedly will have to be fabricated in the United States, involving additional expense and delay. The damage has been estimated all the way from $120,000 to $150,000 and it is expected that from four to six months will be required to put the crane in working condition.

If any stronger argument for the passage of a law absolutely prohibiting the purchase of supplies and equipment by the government outside of the United States is necessary, we would like to know what it is. On what grounds of public policy can this now infamous transaction be defended? What would happen in Germany, where these very cranes were fabricated, if the imperial government went outside of the fatherland for an important item of naval equipment?

Stupid Patriots

It is high time indeed for the American people to wake up and realize that in many high positions in the government service we have men who are either too short-sighted or too stupid to understand the meaning of the word patriotism.

Consider also the tremendous losses that would ensue should one of these cranes fail while handling a lock gate, or other important piece of canal equipment, resulting in a traffic blockade that might not be raised for days.

The Reward of Courage

William C. Redfield, secretary of commerce, in a recent interview, stated: "All that now is necessary is that American manufacturers have the vision to see and the courage to grasp the opportunities offered." We have given, above, the history of one transaction in which an American manufacturer had the vision to see and the courage to grasp. We also have detailed the results that followed. Need any more be said?

Generated on 2024-07-26 09:56 GMT / https://hdl.handle.net/2027/mdp.39015043584484
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN